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THE TREATMENT OF VARICOSE VEINS BY THE INJECTION METHOD.*

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The injection of chemical irritants in venous channels to cause sclerosis and obliteration of these channels is by no means a new procedure. In 1851, Pravaz, on perceiving that ferric perchloride caused quick clotting of blood, employed this substance in the treatment of aneurysms. In 1858, Chassaignac used the same chemical substance intravenously to obliterate varicose veins. Practically every year since that time one can find in the literature almost every irritating substance in the pharmacopeia used for the purpose of obliterating these veins. Vallette, in 1875, employed tannic acid, and, with the succeeding years, we find, used by various advocates, arsenical preparations, mercuric chloride, alcohol, and even 5 per cent phenol! Because of these strong substances, the lack of proper technique and the subsequent complications, the injection method of treating varicose veins fell into well deserved disrepute. About this time scientific surgery was born, extensive resection of varicose veins superseding injections, and the pendulum justly swung in the opposite direction. Surgery also had its day, but, because of unsatisfactory results, the pendulum once again began to move. Such men as Sicard, Gaugier, Alexander, Forestier, Douthwaite, and Genevrier, working with improved technique and milder and more specific solutions, such as sodium chloride, sodium salicylate, glucose, urethane and quinine hydrochloride, deserve the credit for the present day method of treatment. Do not understand me to say that the last word has been spoken on the treatment of varicose veins, but certainly a forward step has been taken.

Let us digress a moment and review the anatomy, physiology, and mechanics of the normal veins of the lower extremity. There are two main venous return routes—the deep, which follows the larger arteries, and the superficial, or saphenous, which is found from the large toe, coursing along the inner aspect of the lower extremity, and entering the femoral vein at the formamen ovale near the groin. Between these two channels there are communicating veins which only allow the saphenous or superficial to communicate with the deeper or femoral vein. The communicating veins are normally "one way streets" because of their valves. The venous flow returns from the lower extremities because of the arterial pressure, the aid of valves, the muscular tone and action and the aspiratory action of respiration. The superficial or saphenous system lacks the muscular protection and action, and is only covered by a variable amount of fat, superficial fascia, and skin.

The exact etiological factor of varicose veins has never been definitely determined. Heredity, occupation, posture, chronic low-grade infection, increased abdominal pressure, including pregnancy, fibroids, etc., certainly play their part. Whatever the cause, the clinical pathology is as follows: There is a slight engorgement of the veins of the legs. This progresses with an increased pain and tired feeling of the patient until there is a distinct bulging or prominence of the saphenous vein and its tributaries. In time they become tortuous, elongated and dilated. At night there is swelling of the feet and legs. The veins have lost their tone and the flow becomes stagnant, and, finally, with the advent of valvular inefficiency, there is an actual reversal of venous flow. Here gravity plays its role and a vicious cycle results. DeTakats shows that normally the venous pressure in the erect pisture is from 8 to 18 c.m.m. of water, while in the varicose state the pressure may be from 76 to 210 c.m.m. He also compared the CO_2 and O_2 content of the cubital blood with that of the varicose blood and found a marked increase in CO_2 and a decrease in the oxygen in varicose blood. Because of this increased pressure, anoxemia and acidosis, there is a thickening and hyper-

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trophy of the parts with eventual damage to the arterial and lymphatic systems. Edema, eczema, and ulceration follow.

In the out-patient department of the Medical College of Virginia I have noticed for years patients with varicose ulcers, who have been "the rounds" of doctors and dispensaries to have their ulcers healed, only to reappear again on the slightest provocation. Some of them gave a history of ten to fifteen years, which was verified by the large areas of pigmentation and scar formation at the sites of previous ulcers. The majority of these patients would not have these veins removed by operation, so I began to use the injection method.

By nature I am prejudiced against intravenous injections, so a thorough investigation of the injection treatment of varicose veins was made. I visited several of the large clinics of New Jersey, New York, and Boston and was impressed with the work of Dr. J. C. White, of the Peripheral Circulatory Deparment, of the Massachusetts General Hospital. I am indebted to Dr. White for his interest and permission to adopt his method. I have employed several irritants, but found that quinine-urethane (urethane 2 gm., quinine hydrochloride 4 gm., distilled water 30 c.c.—Parke-Davis No. 162) gave the best results.

A general examination is given every patient including a urinalysis and Wassermann. The Trendelenburg test is also made to determine the efficiency of the deep circulation. The contraindications are severe diabetes, marked cardio-vascular-renal disease, septic thrombo-phlebitis, and pregnancy toward the latter half. One should be on guard for deep femoral thrombosis with compensatory venous circulation. If syphilis is present, salvarsan may be given into one of the varicose veins. This will aid in their obliteration.

After the examination the patient is made to expose the legs and stand while holding to a chair or rail, and the whole area of the varicosities is sterilized with iodine and alcohol. The most prominent low vein is injected. Under sterile technique, while using an ordinary hypodermic syringe and needle, the solution for use is drawn into the syringe and the vein punctured in the usual fashion. The skin prick should be all the pain experienced by the patient. Immediately, if the needle is in the vein, blood appears in the syringe. About one-half c.c. is injected and the plunger released. If the needle is still in place blood will flow again in the syringe. This is a safeguard against perivenous infiltration. This is repeated until the syringe is empty. Make firm pressure over the point of the needle, withdraw it, and allow the patient to lie down on a nearby table. About two c.c. of the quinine-urethane solution are used for each vein injected. The number of injections would naturally vary according to the extent of the varicosities. If there is pain or swelling during the injection, the needle is left in position and three or four c.c. of distilled water injected to dilute the solution, which may have escaped in the perivenous tissue. The entire leg is tightly bound and the patient is allowed to go about his or her daily routine in ten or fifteen minutes. These injections are given about once a week. One, two, or three veins may be injected at the time. Veins over bony prominences, such as the shin and malleoli, should not be injected at all, or the quantity of the solution should be reduced because of the proximity of periosteum and the persistent pain which results if there is perivenous spilling.

The substance when injected immediately causes an irritation of the intima of the vein. There is an intimal hyperplasia, or in reality, "a chemical venous endothelitis." A firm clot is formed which secondarily is organized into a dense, tenacious thrombus held together by fibrous tissue. This gradually occludes the lumen of the vessel. This chemically obtained thrombus is characteristic and its nature should be contrasted with the infectious thrombus. One is produced by sterile chemical means, is hard and densely adherent and has no tendency to separate, while the infectious thrombus is soft, and, because of bacterial lysis, there is a tendency to dislodge and cause emboli.

Objections have been raised against the injection treatment of varicose veins because this method at first appears unscientific and nonsurgical, and because theoretically embolic deaths may result, or there may be sloughing and sepsis at the site of injection. As for the sloughing, the proper technique would eliminate this objection, and, of course, one should proceed with sterile precautions. McPheeters and Sicard have proven that it is scientific and

that the circulation in varicose veins is actually reversed or centrifugal, and on account of this reversal and tenacious nature of the thrombus, embolic deaths are very, very rare. As for the embolic deaths as a complication, they speak for themselves. Theoretically it is a complication, clinically it is not. Sicard, in the Necker Hospital Clinic, in Paris, reports 300,000 injections with no deaths. McPheeters showed that surgical excision had eighty times more embolic deaths than injection. Hope Carlton states that there is an embolic death in every 100 surgical resections of varicose veins. We have had no complications of any kind and our results have been very satisfactory.

A comparison of the injection treatment and surgical resection of these veins is very interesting. With injection there is no hospitalization, no loss of time, no incision, no disfiguring scar, no anesthetic with its complications, it is not as expensive, and is eighty times safer from embolisms.

Carlton also said, "There is no operation the passing of which will be less regretted than the surgical excision of varicose veins."

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THE CHEMICAL OBLITERATION OF VARICOSE VEINS.*

By FRANK HELVESTINE, JR., M. D., Roanoke, Va.

Varicose veins are far more common in women than in men, a result of the special obstructing influence exerted by the pregnant uterus on the veins. In a third of the cases due to pregnancy the affection is bilateral according to Jasche and, when unilateral, or more marked on one side than the other, the veins of the right leg suffer more, probably on account of the tendency of the gravid uterus to rest on the right side of the pelvis. Varicosities of the veins of the legs, with their various complications, are so common in women that the affection may well be included in the list of gynecologic diseases.

The idea of the obliteration of varicosities by the injection of chemicals into the lumen of the veins is by no means of recent origin, but, because of the strong caustic and toxic action of the chemical substances used, the method fell into disrepute and was not revived until 1911, when Blum, Linser, and Sicard, working independently, each with a different chemical substance, noticed that the basilic vein after several injections would become thrombosed and obliterated. Sicard, following up his observation, found that he could, by using small amounts of a 20 to 40 per cent solution of sodium bicarbonate, obliterate varicosities without untoward results. Later, Sicard used sodium salicylate for his injections because of its less caustic action. Since the work of Sicard and his associates, of the Marseilles School of Medicine, the treatment of varicose veins by the injection method has been steadily gaining in popularity; the technic has become perfected, a number of chemical substances of decreasing toxicity and irritability are being introduced, and the indications for the use of this method have been broadened.

The substances used in this country at present for injections include sodium chloride, sodium salicylate, glucose, and quinine and urethane. All of these substances in the strength used are irritating and painful if imperfect technic is employed and the chemicals

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allowed to infiltrate the tissues about the veins. Sodium chloride and sodium salicylate under these conditions cause sloughs with accompanying ulceration. The last two solutions mentioned, glucose, and quinine and urethane, cause a painful chemical inflammation under the above circumstances, but rarely if ever cause sloughs. The results obtained from the injection of glucose are uncertain, while the proper injection of the other three substances generally causes the desired reaction and obliteration. Certain persons have idiosyncrasies to salicylates and quinine, so that in using these substances the dose used for the initial injection should be small.

In my own practice, I have used quinine hydrochloride and urethane solution (quinine hydrochloride—0.266 gram, and urethane—0.133 gram, dissolved in 2 c.c. of distilled water) exclusively. As an initial dose, an injection of 0.25 c.c. of this solution has been used, and never more than 2 c.c. has been injected at one treatment. Treatments have been carried out twice a week.

The apparatus required is simple and inexpensive: A 5 c.c. Luer syringe and a 26 gauge needle. A good syringe and a sharp needle are indispensable, because an intravaricose injection is much more difficult than an ordinary intravenous injection, and it is absolutely necessary to possess a perfect technic to avoid the escape of a small amount of the irritating fluid from the vein into the tissues at the time of injection.

Preliminary to the treatment of any patient, a history should be taken and an examination made to exclude any contraindication to this particular method of treatment. The history of a post-operative or post-partum phlebitis is of the utmost importance. The circulation of the affected extremity must be tested. The pulsation of the femoral, popliteal, posterior tibial and dorsalis pedis arteries should be investigated, particularly in older persons. The state of the venous circulation is tested by Trendelenburg's method. If the deep veins are thrombosed and the superficial veins have undergone a compensatory hypertrophy, they should not be attacked. Pregnancy, menstruation, uterine fibroids, severe nephritis, myocardial degeneration and extreme old age are distinct contraindications to the injection treatment of varicose veins with quinine and urethane.

The posture of the patient may either be standing, sitting, or horizontal to suit the convenience of the operator when treatment is being given. In a standing position, the varicosities show up most prominently.

It is well to shave the limb and strict asepsis is to be maintained after the site chosen for injection has been cleaned with iodine and alcohol. Usually the varices nearest the malleoli are chosen as the site for the initial injection. The needle is inserted carefully with the bevel away from the skin surface. It is very easy to tear a thin walled varicosity or, by meeting only slight resistance, to plunge the needle entirely through the vein. On both sides of the needle at a distance of several centimeters the vein is compressed by the fingers of the free hand and blood is aspirated before injection is begun. After injection, the needle is held in place for a minute, pressure is applied by a large sponge or ball of cotton saturated with alcohol, and the needle withdrawn. An adhesive strap is then applied over the sponge to maintain pressure and keep any of the fluid from escaping from the vein. This is left in place for forty-eight hours. An elastic stocking or elastic bandage worn during the course of treatment aids materially in the results.

Injection is rarely, if ever, carried out below the malleoli, as any varicosity in this region, after injection higher up, becomes smaller and is as a rule symptomless. From the malleoli upward, the whole saphenous trunk may be treated even to within four or five inches of the saphenous opening. The number of injections required varies directly with the extent of the varicosities. In cases with ulceration, care must be taken not to inject too close to the ulcer, if it is acutely inflamed. A supportive treatment is important in these cases to obtain the best results.

Venous obliteration is not caused directly by coagulation of the blood, but thrombosis occurs secondarily to the inflammation of the intima of the vessel which has come in contact with the irritating chemical. The clot produced has been shown to be quite different in character to that following an infective process in a vein. It is in intimate contact with the inner coat of the vein, solid throughout and decidedly leathery in consistency. Within

twenty-four hours it is firmly attached to the wall of the vessel (Meisen). Organization is complete in from two to three weeks.

Following the injection of quinine and urethane solution, a section of vein for about 4 c.m. on either side of the site of introduction is involved. This region, the following day, is slightly swollen and on palpation appears as a rather firm tender cord. Later, as organization takes place, this cord shrinks in size and becomes fibrous.

Reactions and complications are due usually to faulty technic in injecting, an overdose in a thin wall vessel, or a leakage after the needle is withdrawn. All of these conditions cause an inflammation of the perivenous tissue which is very painful and is best relieved by hot applications. Hematomata are often seen, due to the leakage of blood into the tissues. After the insertion of the needle, there is practically no pain, but at times the patients complain of a burning sensation and a feeling of fullness in the vein. The day following a treatment, there is usually some stiffness and soreness in the limb with tenderness along the course of the vein at the site of injection. One of my patients was nauseated and vomited about an hour after the injection of 2 c.c. of quinine and urethane solution.

Theoretically, following such a method of treatment, the danger of embolism is ever present. However, Tavel and Bernheim state that they have never observed a fatal embolism from a thrombus in a superficial vein. McPheeters and Rice, in their search of the literature, found a report of seven deaths in about 53,000 cases in which the injection treatment was used, a mortality of .002 per cent.

The obliteration of varicose veins by chemical agents has many advantages over the operative treatment of this condition. The method is practically painless, the daily routine of the patient is not interfered with, the indications are practically the same, and the results are as good, if not better. There is not the risk from anaesthesia and the danger of embolism appears from statistics to be much less from the injection treatment than from the operative. In the patients whom I have personally treated, there has not been time as yet for recurrences, but if such occur in the course of time, it will be a simple matter to reinject, and they have been so pleased with the relief afforded by this easy procedure that there will be no hesitancy in returning for any correction necessary.

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DISCUSSION OF PAPERS BY DR. DANIEL AND DR. HELVESTINE, ON VARICOSE VEINS.

DR. T. J. HUGHES, Roanoke: This subject has been so well covered by the essayists that there is really not much left for discussion. It is very evident from the statistics that have been related that we have been using this method of obliteration of veins for a great number of years, but I do believe that we were obliterating veins when we were not conscious of it and that this excellent method of treating this condition was an evolution of the intravenous treatment of many other conditions. You know in treating syphilitic conditions by the use of irritating substances and in treating other conditions you have found that after using a certain vein several times, you could not get that vein. No doubt you had obliterated it. So I believe this excellent mode of treatment is the result of a coincidence in treating other diseases.

There is just one thing I do not recall having been brought out in the two papers which I think is very important, and that is producing pressure on either side of the area injected so as to confine the solution to a limited area in the vein. I do not recall that that point was brought out in the papers. This pressure on either side of the point of injection should be made and continued for from two to five minutes, so that the venous pressure at that particular point will be exaggerated and the intima of the vein will not only be irritated but in a great many instances completely destroyed. That is the reason that the clot forms so quickly and adheres so tenaciously to the walls of the vein and obviates the danger of pulmonary embolism. After this method of treatment was discovered, we were afraid to use it for a time, thinking there was more danger of embolism, but it has been shown that the danger is very much less than the danger of embolism in a surgical operation.

DR. LEWIS ANGLE, Johnston-Willis Hospital, Richmond: Dr. Daniel and Dr. Helvestine, as well as Dr. Hughes, have covered the entire field, I think, in the treatment of varicosities. In the past year I had the pleasure of doing some experimental and also some clinical work under Dr. John Staige Davis, of Johns Hopkins. In the experimental work we found that if we used a solution of fifty per cent glucose and thirty per cent sodium chloride, equal parts, we would get a firm thrombosis, much superior to any we had used and far better than the common injections we use today. This was proven experimentally and clinically. We used dogs for the experiments. We tried to approximate the condition of varicosity as nearly as we could. This proved very satisfactory clinically in a series of over five hundred cases.

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In the injection treatment, Dr. Hughes has brought out, in my mind, the chief fact that you want to get the injection fluid in direct contact with the intima of the vein wall and let it remain there as long as possible. The various men who are doing this work, Meisen, in Copenhagen, McPheeters, in Minneapolis, Sicard, of Paris, and other men, all use various methods. In New York, especially, they use a method by allowing the patient to stand up. I notice Dr. Helvestine used the same method. We tried that, as well as other methods, and when the patient could not stand up we let him lie down.

In conclusion, we found that most satisfactory results were obtained by the following procedure: We let the patient lie down, thus emptying the vein, and ligate it, leaving enough blood in to determine the position of the needle, then inject the vein, putting firm pressure over the needle, allowing it to stay for several minutes, and letting the tourniquet remain for from five to twelve or fifteen minutes, depending on the size of the vein; next remove the tourniquet and put a firm pressure bandage up to the knee, which is to stay on anywhere from twelve to fifteen days after the operation.

In using a solution of fifty per cent glucose and thirty per cent sodium chloride, mixed in equal parts, we found two great advantages which were most admirable. There is no cramp or pain during or after injection; and in case of faulty injection, if your needle has slipped out of the vein, or in case you have a ruptured varicosity in a small vein, you do not get a slough. In our series of over five hundred cases we did not have an embolism, and in no case did we have a complication.

Dr. Hugh Trout, Roanoke: There has been recently a rejuvenation of the injection method which was popular with the French surgeons about twenty-five years ago. Several years ago I visited the various men who were then advocating the injection method of treating varicose veins. The method has a definite place in the treatment of varicose veins, but, I think it is time for us to say and to say very frankly that it has its limitations. It is not a practice to be followed without first having a very careful history and general examination of the patient made. There are some places it has been done without any examination of the patient except the leg, and unfortunately only a few "accidents" have been reported.

One thing that impresses me in the various clinics I have visited, is that many of the doctors in these clinics speak of "two or three thousand cases." However, when you analyze that statement it comes down to several hundred patients each having about ten injections.

The solution does find those little intercommunicating veins much better than the surgeon can. In the recent varicose veins, without any history of infection, I think undoubtedly the injection method is a distinct advance and has definite advantages over surgery. My experience has been confined largely to the cure of so-called "varicose ulcers." In a series of thirty-three cases of large varicose ulcers, there have been only five of those that have not been cured. All of those thirty-three cases have been operated upon, or injected previously, so one cannot state the injection method has caused the ulcer. Unless you are very careful you are going to inject some cases that will have had a phlebitis and produce a recurrence of the infection. There are now many different solutions employed, and it is to be hoped one or two solutions will soon become standard and thereby dissipate much of the skepticism which now exists because of the multiplicity of the solutions, the percentages, and the methods, etc., advocated.

Do not think that a varicose ulcer is an ulcer in the sense that its existence is dependent on the varicosity of the vein alone, for a "varicose ulcer" is an ulcer that is dependent not only on the varicosity of the vein, but also on the blockage of the lymphatics.

As you all know, in these varicose ulcers, the legs are very greatly swollen, almost like an elephantiasis. In those cases, one cannot find a vein to inject, and therefore the injection treatment of such cases is out of the question. Also, if one should find the veins he is likely to increase the lymphatic block, and do more harm than you can possibly do good. I think it is extremely dangerous to try to inject those cases in which there is an ulcer associated with a varicose vein, especially, if there has been any recent history of infection.

Time will show whether the injection of a simple varicose vein will not cause a lymphangitis at a later date. The injection method, except in well selected cases, however (I emphasize "well selected"), is certainly not a procedure to be done in the office without a thorough general examination and a careful history of the patient, but, it certainly has a very definite place in surgery.

Dr. Daniel, closing the discussion: I appreciate the discussion by these gentlemen and I am grateful to Dr. Helvestine for his pictures, which so vividly described the technique and results of the injection.

The position of the patient during the injection, I think, is very important.

The use of the tourniquet I would think is unnecessary, because the venous blood in varicosities does not flow up the leg. In fact, the flow is reversed.

I am glad Dr. Trout spoke of the ulcers. I find that in nearly all ulcers, where there is not so much edema, if you can find a "leader" to that ulcer—or, rather a "drainer" from that ulcer and if that is injected and sclerosed, the ulcer will heal twice as quickly.

The thorough examination of the patient is most essential. If there should be a deep femoral thrombasis from typhoid or following childbirth, occlusion of the compensatory superficial venous system would do untold damage.

Dr. Helvestine, closing the discussion: I want to thank all these gentlemen for their kind discussion.

I do not know that I have anything to add to what has been said, except about the posture. I think the easiest way you can do a thing is the best way. If by putting a patient down on the table you can inject him better, put him on the table; if you can inject him better if he sits down, why sit him down. Most of my patients stand. Use the easiest way to get into the vein.

Usually the reaction around the vein involves about four centimeters on the side of the site of injection. When that patient comes back at the end of a week, for the second injection, we have a cord there that is very firm.

As I said, there are certain contraindications to this treatment. I think one that has not been mentioned is the possibility of some obliteration of the arterial circulation. I think it is very important to palpate the femoral, popliteal, posterior tibial, and dorsalis pedis arteries. All these cases should be very, very carefully examined as to the history and as to the circulation before anything is done.

ARACHNIDISM. REPORT OF A CASE SIMULATING DIFFUSE PERITONITIS.*

By W. LOWNDES PEPLE, M. D., Richmond, Va.

The patient was a strong, robust, healthy boy of six, who, except for the diseases of childhood, had had no previous illness of consequence. On May 1, 1929, he was perfectly well, ate breakfast and dinner but went to bed supperless because he fell asleep. At about seven o'clock on the morning of May 2nd, he ate breakfast consisting of bacon and eggs, bread and milk, and seemed perfectly well. Shortly after breakfast he got on his pony and rode with his father to a nearby field where his father had plowing to do. The boy got off of the pony and began playing about in some newly cleared land. About eleven o'clock he ran to his father crying and said a bee had bitten him on his thumb. He went to the house and had his mother wrap a rag around it and was back in three-quarters of an hour. After playing a while on the edge of the field he began to cry with pains, first in his back and then in his abdomen. The pain grew worse so rapidly that the father took him to the house and sent for Dr. W. W. Wilkinson who saw him at 12:20 P. M. just one hour and twenty minutes from the time the insect had stung or bitten him, and not over thirty minutes after the onset of symptoms.

The doctor stated that he found the child with agonizing pain in the abdomen, which was distended and of boardlike rigidity. The tenderness was general but not marked. His temperature was normal, his pulse was 120, and he soon became nauseated and vomited. The thumb was neither tender, red nor swollen and he only found out about the insect bite by asking why the thumb was wrapped up. Dr. Wilkinson said the case looked like one of diffuse peritonitis from some such cause as a ruptured appendix or perforated ulcer of the duodenum. As the distention became greater and the rigidity more marked an S. S. enema was given but with only slight result and no relief of symptoms. It was then decided to bring him to Richmond for consultation, and one-tenth of a grain of morphine was given to relieve the pain which was excruciating. He was nauseated throughout the trip and vomited repeatedly, the vomitus consisting of the undigested egg and bread he had eaten for breakfast. When he reached St. Luke's Hospital, about 4 P. M., his pain had been almost entirely relieved by the morphine from which he was quite drowsy. His temperature was 99, his pulse 110. He had 20,000 leucocytes with 89 polys. He was tender all over the abdomen and was quite rigid with moderate distention. The rigidity seemed a little more marked on the left than the right side. Dr. Wilkinson stated that the whole picture had been greatly modified by the morphine, as neither the rigidity nor distention were anything like so marked as before it was given. A specimen of urine could not be obtained.

Upon close questioning as to the kind of insect which had bitten him the child insisted that it was a bee but said it was a black bee that had no wings and that he had picked it up off the ground. Here was a robust child perfectly well and in an hour and twenty minutes presenting a picture of diffuse peritonitis. Children do not have duodenal ulcers so it would have to be a volvulus, an intussusception or a ruptured appendix. The onset was too violent and the development of the symptoms was too rapid for any of these. It was decided that the insect was a black spider and not a bee and the case was one of arachnidism and not peritonitis. He was given glucose and soda by rectum; also every four hours 5 grains of calcium lactate and 2 teaspoonfuls of milk of magnesia.

Next morning, May 5th, his nausea and vomiting had stopped, his abdomen had gone down and lost its rigidity and tenderness. His white count had dropped to 12,000 and his polys to 82. His urine, gotten for the first time, showed acetone and diacetic acid but was otherwise negative. On the following day, May 6th, he left the hospital apparently perfectly well.

Arachnidism or the poisoning from spider bite is neither well known nor is its prevalence appreciated in this part of the country. My recognition of this case was due to having heard of two soldiers with similar symptoms who were brought to the Memorial Hospital in Richmond, from a nearby camp, about twelve years ago, during mobilization. I had also heard Dr. J. Bolling Jones, of Petersburg, Va., in discussing a symposium on abdominal pain say that one very important cause had

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been omitted by all the essayists, and that was spider bite. He then reported the case of two colored men with violent abdominal pain as a result of spider bites on their genitals, received while using an outdoor privy. I also recalled a report of one or more cases, in a journal of recent date which I could never locate, of operations on cases of arachnidism, believing them to be diffuse peritonitis.

Dr. Emil Bogen, of Los Angeles, has collected 150 cases, and with Dr. Phoebus Berman has reported in detail fifteen cases treated in recent years in the Los Angeles General Hospital. Their papers fully cover all the details of this interesting and, to most of us in this section, rather novel condition.

abundance in California than elsewhere for of the 150 recorded cases more than two-thirds of them were from that state.

The first recorded case of arachnidism was described by Dr. Adner Hopton, Clinton, N. C., just 100 years ago, and the first recorded death from this cause occurred in the same neighborhood and was reported by John M. Dick in "Insect Life," January, 1889. Some twenty or more recorded cases are of men bitten on the genitals in outdoor privies.

When the bite is received there is a sharp sting at the point of injury but usually little or no local swelling, pain, or tenderness. Within an hour the patient develops pains in the back, legs, and abdomen. This increases

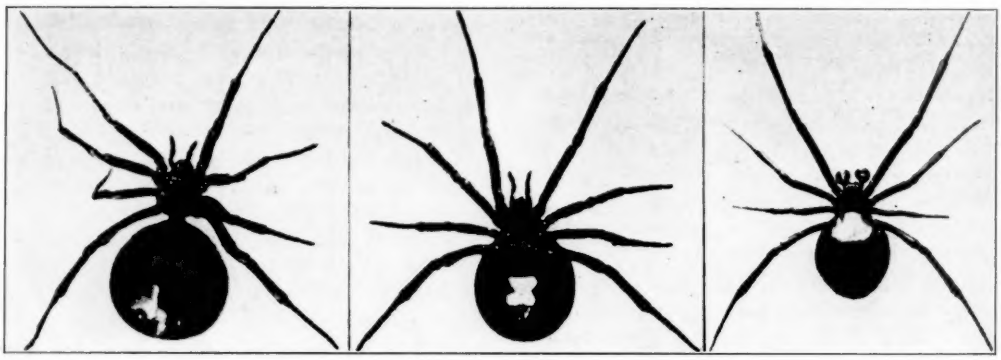

Fig. 1.—The black widow.

Fig. 2.—Turned on her back, showing the marking or dot under the belly. This is usually bright red.

Fig. 3.—The male spider. Taken from Nature Magazine, September, 1929.

The offending insect is the Latrodectus Mactans. Only the female is poisonous, showing that Mr. Kipling's assertion that "the female of the species is more deadly than the male," holds true of insects as well as humans. She is shiny black in color, with red or yellow markings under her belly. These marks vary in shape but the most usual is a bright red dot. She is called the black widow from a playful little habit she has of devouring her husband. She is also known as the hour-glass spider, the shoe-button spider, the T-dot spider, and the po-ko-moo. She is often half an inch in length when fully grown. She is found in dark places such as stump holes in newly cleared ground, under stones and pieces of old wood, in dark corners of little used buildings. Though the black widow infests the Southern States, she has been reported as far north as New Hampshire. She flourishes in greater

in intensity until the patient is often in agony. The abdomen is of boardlike rigidity with generalized pain. The tenderness is slight or absent. There is usually vomiting. The temperature seldom goes to 100, and often is not elevated. The pulse is rapid in nearly all cases. The white blood count is usually high, often going to 18,000 to 20,000 with a poly count of 80 per cent and over. The symptoms reach their acme in a few hours and gradually subside. This may be a matter of a few hours or several days. Some cases are mild in character and some severe. There have been twelve deaths reported.

The safeguards in avoiding a tragic mistake in diagnosis are the precipitate onset; the lack of marked tenderness, and its failure to localize; the low or absent febrile reaction.

Treatment.—This has included a variety of measures, mostly empyrical. Morphine or its

equivalent in the early stages is almost imperative. Next, glucose and soda by rectum or saline under the skin to combat the acidosis of starvation and continued vomiting. Dr. Bogen[1] tells of the use of a convalescent serum which they have used in several cases at the Los Angeles General Hospital, with encouraging results.

From conversations with a number of doctors from Virginia and North Carolina, I am convinced that this condition is far more prevalent than one would believe, and that case reports and discussions would be helpful in making it generally understood.

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McGuire Clinic.

DISCUSSION.

DR. P. B. BARRINGER, University: Less than two years ago I lost a grandson. He had been walking in the garden at sundown, holding his father's hand, when he complained of intense pain in the popliteal space. Nothing was found, neither snake nor spider. He was taken into the house, and physicians examined and treated him, but at the end of exactly twenty-four hours he died.

I had in my youth taken a fair amount of interest in insect life and had a reasonable knowledge of the spider. Naturally, however, I began to extend it. I got Comstock's work, which all workers in that line know, and I began to look into the reports in different journals. Whensoever a spider man speaks of Latrodectus, he speaks depreciatingly of its toxicity. I think the first report was made in 1889 by Riley and Howard. In that whole series of reports the spider was identified but one time. In Arkansas the professor of entomology in some institution had five students and himself bitten. A reaction occurred in only two, one slight and one rather serious. Now I believe I have run upon a possible solution of this mystery. In the first place, there may be other things than spiders; it is not yet proven, by any means, that the spider is alone. But if the spider is alone, as our friend said, it varies immensely in toxicity.

Henri Fabre was an old French peasant. He began to study insect life and made such contributions that the world will ever be indebted to him. In his ninetieth year he joined the French Academy. Among the things he studied was the "devil's walking stick," you all know that insect. Not only does the female devil's walking stick eat her husband, but Fabre has found cases in which seven or eight husbands were eaten. I remember what old Cannon, in Utah, said about polygamous marriage to Senator Hoar, of Massachusetts. He said: "We treat them exactly in Utah as you treat them in Massachusetts, but we drive them abreast and you drive them tandem." Now, we have a tandem series here. It may be that Lactrodectus mactans eats more than one husband, and it may be that the toxicity is dependent upon the conjugal diet. I have not had the opportunity (I see poorly), to look into the records, but if you will study the season or period of bite, of toxic bite, as compared with the period of relatively non-toxic bite, you will find whether my hypothesis is true or not, because the breeding season can hardly be over three months I think the three months of August, September, and October would cover the great majority of these cases.

I was glad to hear the reference to the California series, but remember that the Lactrodectus geometricus (?) differs somewhat from the mactans. It is a little larger, is grayer, and it seems that its toxicity is a little more constant, which would coincide exactly with the climate—that is, the longer season in California and Arizona.

I am very glad the attention of this body has been called to this mystery and menace, and I hope that the two can in time be separated by some member of this body.

DR. W. A. BRUMFIELD, Farmville: I want to attest to the comparative frequency of this. I have known myself of four cases of this arachnidism; two of them were in members of my own family. One of the four cases occurred three years ago, a case of a bite on the genitals in an outdoor privy. I think in every one of the four cases there was a short period of delirium and unconsciousness.

This professor of entomology that Dr. Barringer referred to tried out a tarantula on mice and English sparrows and students and himself, I believe the order was, without getting any of the fearful reactions commonly though to result from a tarantula bite. In the case of the mactans he did not try it out on the smaller animals at all. After some hours of very intense suffering, during which he was conscious, he was taken to a hospital and came to himself there, a few hours later.

This insect is exceedingly common. Out in the fields, in old stumps or under stones or pieces of wood that have lain there for a long time, or under shocks of wheat or oats, it is very common. It happens not to be a very aggressive insect, which is the only reason we do not have many cases of arachnidism.

DR. W. W. WILKINSON, LaCrosse: I think this subject is one that will interest the country physician more, because we see more of it in the country than they do in the cities. As Dr. Peple mentioned, a large number of these bites are in the country in dry closets. Recently, in Brunswick county, the County Board of Health has had dry closets installed. I am afraid the Board of Health will have trouble getting them used, because we have had two cases of arachnidism recently from using these closets. It is a good deal more serious than snake bite. I believe some of the houses that manufacture serum and vaccine should perfect some vaccine for it.

XUM

DR. P. B. BARRINGER: I want to say that openings under the concrete walks in the cities and towns furnish a perfect nidus for mactans. Where the rats travel these paths from house to house, they come up occasionally at the edge of the concrete, and there you will find the mactans. Don't worry; it is going to be transferred to the city.

DR. J. BOLLING JONES, Petersburg: At the meeting of the Tri-State Medical Association of the Carolinas and Virginia, someone read a paper on extra-abdominal conditions producing abdominal symptoms, which I think was one of the most important papers read at that meeting. I have seen three definite cases of arachnidism and I think one problematical. Two of these cases were white and one colored. They all occurred early in the morning. The men were all laborers, and the bites occurred at the time they went to the toilet just before going to work, when it was a little dark—about six or seven o'clock in the morning, when they could not see very well. The point of contact as given me by all three of these cases was on the end of the penis. I had figured that probably the symptoms would not occur in the abdomen unless there was connection with some nerve supply in the genital region, and I am delighted to know that Dr. Peple also found the abdominal symptoms in his case, where the contact was at the thumb. The characteristic thing about it is the suddenness of the onset. It is characterized by its sudden onset and then by its intensity. The initial symptoms in all these cases were the same—intense abdominal pain—most intense. I shall never forget the first case; the man was in agony, was drawn almost in a knot. He told me, without my asking, that he was sitting on the toilet and felt a little prick. He looked down but did not see anything, but he had felt a sharp prick. He forgot it for an instant but in a very short space of time was taken with the violent pain in the abdomen, which almost drew him in a knot. In other words, this thing enforces on us the necessity of getting a careful history. Dr. Peple said what led him right in this case was getting a careful history. I gave my patient an initial dose of morphin, which relieved him, and within a few hours his symptoms all disappeared. As I recall it, he had no vomiting at all, but intense pain and rigidity. Not very long after that I was called to another man with the same symptoms. He d'd not tell me anything about feeling a prick, but recalling the other man I asked him about it, and he said it occurred right after going to the toilet. I was called to the third case to operate for appendicitis. He was so rigid he could not hold himself straight, with intense pains in the abdomen. He had intense rigidity, intense pain, without any localization; had vomiting; had no fever. This case you will find recorded in the *New York Medical Journal* of about six or eight years ago. His symptoms persisted for about thirty-six hours before we could get rid of that intense rigidity. The funny thing about it is that it is rigidity plus distention, which is something unusual in perforation. Distention in actual perforation, to my mind, does not come on for six or eight hours. In this case there was also violent obstipation; it was very difficult to get anything through this man. He was not operated on, and all three of the cases recovered.

DR. PEPLE, closing the discussion: I wish to thank the gentlemen who have discussed this subject. I know nothing of insects, and I was very glad to hear Dr. Barringer's talk on this subject. He spoke of the men who deal with insects, belittling the clinical aspects of arachnidism, and I think perhaps he has hit upon the cause of it. The insects are in captivity, are provoked into biting, and are perhaps off their usual feed. Another thing, the bites are usually on the finger and not on the thigh or some other region where the skin is soft, and perhaps less poison is injected.

I think the condition is far more important and far more frequent than we have any idea of, at first glance. Dr. Brumfield tells of several cases, and Dr. Jones of three. There was one point brought out, that of having swelling at the point of the bite. I read all of the reports by Dr. Bogen, and they are most interesting. Where the tissues are soft, there is often considerable local reaction. In Dr. Wilkinson's case, if the child's finger had not been wrapped up he probably would not have heard of it; the bite was regarded as a trivial thing. The violent pains in the abdomen, as well as in the back and thighs, occur even when the bite is on the finger.

FRACTURE OF THE PELVIS, WITH REPORT OF A CASE.*

By CHAS. W. PUTNEY, M. D., Staunton, Va.

Developments in industry, with a corresponding increase in accidents, during the last quarter of a century, have greatly increased the number of cases of fracture of the pelvis. It is to the credit of the medical profession that modern surgery has kept pace with industry. Prompt operative procedure, when indicated, in complicated cases of fractured pelvis, has greatly reduced the mortality. The suspension method, first used by Douglas P. Murphy in the U. S. Army, and popularized by Jopson[1] in 1922, is clearly illustrated and described by Scudder.[2] This method has made for the increased comfort of the patient, and improved anatomical and functional results in certain types of fractured pelvis. It is for the purpose of emphasizing this method that this paper was prepared, as it does not seem to be fully described in most text books on general surgery.

The pelvis is encircled in a hammock, or swathe, fastened to an overhead bar, placed just high enough to suspend the pelvis from the bed. This greatly facilitates the nursing care of the patient, and the patient's weight gradually produces and maintains reduction. The body weight can be counterbalanced by weights and pulleys, if so desired, and Buck's extension may be applied to the extremity, if the pelvis is tilted, and one fragment is situated higher than the other.

A classification of fracture of the pelvis is given by Sever,[3] in his excellent review of

*Read at the sixtieth annual meeting of the Medical Society of Virginia, in Charlottesville, October 22-24, 1929.

the literature, and report of cases, as follows:

1. Fracture of the ilium,
2. Fracture of the pubic arch,
3. Fracture involving the acetabulum.

Fracture of the pelvis should also be classified as:

1. Fracture of the pelvis, without complications,
2. Fracture of the pelvis, with complications.

tient has recovered from the shock of the operation.

Fracture of the pelvis is usually caused by violent force. This may be produced in many ways, too numerous to be enumerated here. It is often crushing in character, and may be either lateral or antero-posterior. Fracture through the acetabulum may be caused by falls on the feet.

Symptoms and Diagnosis: There is a history of injury from violent force. The patient is in a state of shock, complaining of pain in the pelvic region, which is increased by motion of the lower extremities, and is unable to walk or sit erect. Mobility and crepitus may be detected, and ecchymosis of the inguinal, genital, or perineal region will develop after several hours. Careful search for the complications mentioned above, and the use of the catheter unless the patient voids, should immediately be made in all cases. The symptoms of the complications can be found in any text book on general surgery, and need

Fig. 1.—X-ray picture taken before treatment was begun.

The fracture itself may be of secondary importance, and the diagnosis and treatment of the complication may demand first place. Frequently one will find, upon careful examination, that there is injury to the bladder or urethra. Occasionally the rectum or vagina may be traumatized, or there will be signs of peritonitis, occasioned by the rupture of an intra-abdominal viscus which will demand an immediate laparotomy and repair. In such a case no thought of permanent fixation of the fracture should be entertained until the pa-

not be mentioned here. The Roentgen rays will reveal the nature and extent of the fracture.

TREATMENT: Determine the extent of the injury and treat the shock and the injury to the soft tissue first, if of serious moment. If there is evidence of beginning peritonitis, an immediate laparotomy should be done, and careful search made for the rent in the viscus which, when found, should be repaired. Should the bladder be ruptured extra-peritoneally, a suprapubic incision should be made, drainage instituted, and a catheter inserted and left in the urethra until healing of the incision is well under way. In male cases complicated by rupture of the urethra, a perineal incision should be made and a catheter should be placed in the urethra, and free drainage maintained.

Treatment of the fracture itself can be carried out while the patient is convalescing from the complication, if any be present.

1. Fractures of the ilium do well with properly applied adhesive straps, or a pelvic belt, with rest in bed.

2. Fracture of the pubic arch is perhaps best treated by the use of the Jopson hammock, as described by Scudder.[1] The author is well aware that there are numerous cases successfully treated by the use of: the Bradford frame, adhesive straps, pelvic belt, or plaster-of-Paris; and that the Whitman cast is probably the best method in cases with fracture through or posterior to the acetabulum.

3. Fractures through the acetabulum should be reduced, under anesthetic if necessary, a plaster spica applied in the position of abduction, and provision made, if necessary, for Buck's extension, and lateral traction.

Fixation should be maintained for four or five weeks, then a pelvic belt or adhesive straps tightly applied, and the patient kept in bed another week before being allowed to use the rolling chair. Crutches may be used with very little weight-bearing, after the ninth or tenth week. Light work may be begun in three or four months. The time may be reduced in less severe cases.

MORTALITY AND MORBIDITY: Quain, reviewing the literature, found the general mortality

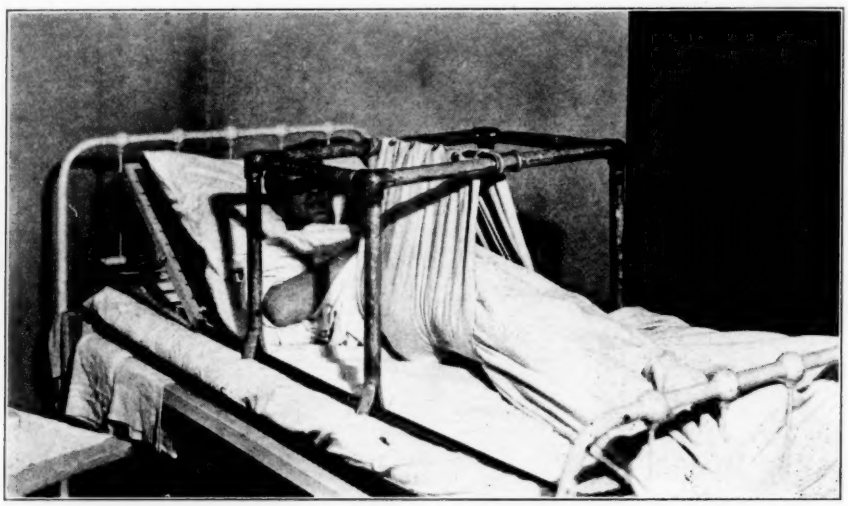

Fig. 2.—Photograph of patient suspended in hammock.

to be 86.78 per cent of all cases of fractured pelvis reported previous to 1890, as was pointed out by McClanahan.[4] Hawpe[5] collected 127 cases from the literature, previous to 1917, complicated by rupture of the bladder, with a mortality of 74 per cent. It is interesting to note that Quain reviewed the cases reported between 1905 and 1916, complicated by rupture of the bladder, and found the mortality during that period was reduced to 38 per cent. There is reason to believe, at least to be hoped for, that progress in modern surgery during a similar period since that time has caused a further substantial reduction in mortality in the complicated cases of fractured

pelvis. Uncomplicated cases do not seem to carry a high mortality. Sever[3] reported fifty-one cases, one only having ruptured urethra, with only one death.

Functional results are usually good. Occasionally one will be left with a limp, and rarely will a patient develop a peroneal paralysis with a foot-drop to continue longer than a year.

Case for Illustration

Mr. E. M., white adult male, laborer, age 31, was admitted to the hospital Nay 7, 1928, complaining of pain in the pelvic region and gave a history of having been caught under a gear wheel, which weighed 1800 pounds. He could stand with assistance but was unable to walk or sit erect. The pain was increased by attempts to move his lower extremities. There was considerable tenderness over the inguinal, genital, and hypogastric region, but there was no true abdominal rigidity or other evidence of beginning peritonitis. He was able to void freely, and the urine was negative for blood. The specimen of feces, which was secured a few hours after admission, did not show any evidence of blood. The patient was left quietly in bed, a fracture of the pelvis being strongly suspected. Symptoms of possible complications were kept foremost in mind, but none had developed when last seen that night. The next morning there was a well marked ecchymosis of the inguinal, genital, and perineal regions, but there was no evidence of abdominal rigidity or extravasation of urine. Roentgenological examination showed a wide separation of the symphysis pubis. A consultant was asked to see the case, and it was thought that the application of a plaster spica would be adequate. We applied the cast, with attempts at reduction, but re-examination with the Roentgen rays showed the same amount of separation as was shown at the previous examination; moreover, the cast was uncomfortable to the patient. After further consideration it was decided best to suspend the patient's pelvis in a canvas hammock, and, ac-

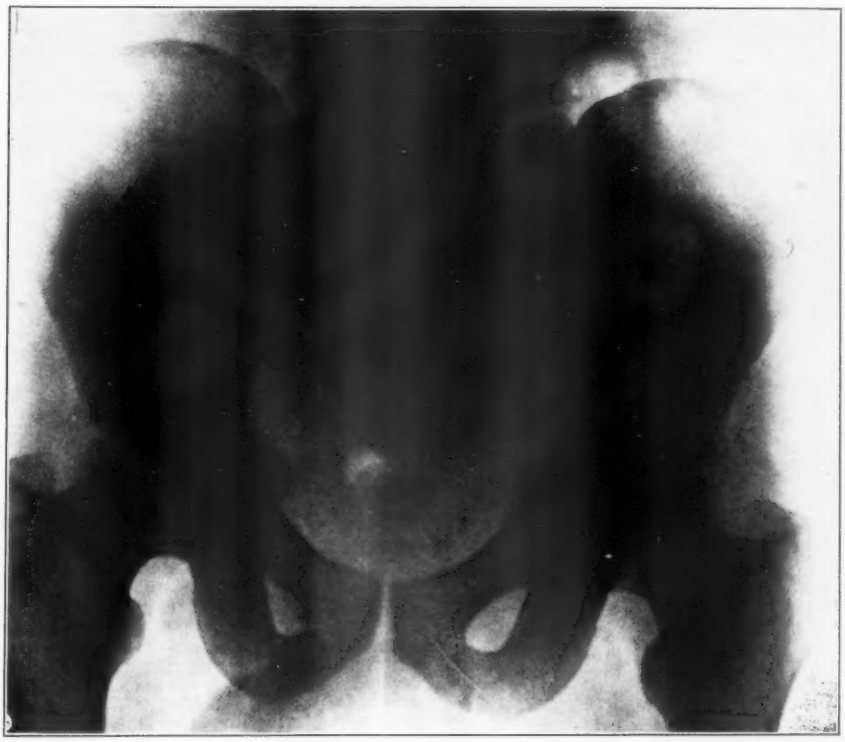

Fig. 3.—X-ray taken after being suspended three weeks in hammock.

cordingly, after removing the cast, the patient was suspended in a hammock made by a plumber under my supervision. The patient was given a back-rest at a comfortable angle. He complained very little of the position, and remained suspended about three weeks, at which time Roentgenological examination showed complete anatomical reduction. Adhesive straps were tightly applied around the pelvis, the hammock was discontinued, and the patient was kept in bed another week. He was then permitted to use the rolling chair

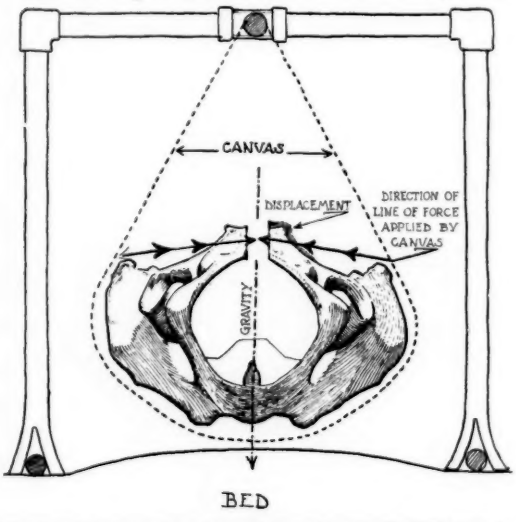

Fig. 4.—Diagram illustrating lines of force, produced by suspension of pelvis.

for a few days, after which he was permitted to use crutches and leave the hospital. On June 27, 1928, he returned to light work, sitting by and watching a gasoline engine. He was seen many times over a period of ten months, and has perfect functional results, now doing hard work every day.

COMMENTS AND CONCLUSIONS: The lines of force in the Jopson position, as shown in the accompanying diagram, are such that the patient's own weight produces and maintains reduction; the position facilitates nursing, and is not uncomfortable to the patient. It must not be overlooked, however, that a standardized method of treatment for all cases of fracture of the pelvis cannot be adopted, as the treatment must be adopted for the case at hand; and certain individual indications will occasionally arise. It is believed that with the proper use of the Jopson hammock, in widely separated fractures of the pubic arch, open reduction will be an obsolete procedure, and the cast will be discarded in treating fractures of the pelvis, except in cases in which the fracture passes through or posterior to the acetabulum.

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Professional Building.

DISCUSSION.

DR. A. L. TYNES, Staunton: My experience with fracture of the pelvis is limited entirely to having had the opportunity of seeing this one case with Dr. Putney, and I wish to say that the treatment with the hammock was so entirely satisfactory and so much more comfortable than the use of the plaster-of-Paris, which we had first applied, that I now believe that those of you who have occasion to treat such fractures would do well in the future, in this particular class of fractures, if you will discard altogether the plaster and treat your patients with the hammock from the beginning.

There is one feature in the use of the hammock which I noticed Dr. Putney failed to speak of, and that is the employment of a spreader. If you use the spreader it will prove in the majority of cases very much more comfortable than treatment without the spreader. It should be exactly the width of the patient's pelvis and the length of the hammock.

The hammock is not only much more comfortable and quite satisfactory so far as results are concerned, but it makes the sanitary care of the patient much easier, and this fact appeals not only to the surgeon but as well to the nurses attending the case.

SYPHILIS OF THE CARDIOVASCULAR SYSTEM.*

By H. H. HAZEN, M. D., Washington, D. C.

The increasing number of deaths from cardiovascular disease, the repeated observations that cardiovascular lesions are almost universal in syphilitic patients coming to autopsy, and the decrease in life expectancy of syphilitics are facts that are in accord. But it must not be understood that the majority of cardiac deaths are remotely due to the treponema, for that is certainly not true. However, enough deaths and disablements are due to syphilitic lesions of the heart and aorta to make study worth while.

There are a number of facts that are well known and generally accepted. These are:

1. Aortitis is usually syphilitic.

2. Syphilitic aortitis may involve the base of the aorta or the "supra-coronary region." If the base be involved the aortic ring is frequently dilated, although theoretically one might expect a stenosis. This dilatation is due to lack of muscle tone and destruction of elastic tissue. The coronary arteries are affected by narrowing of their orifices or direct disease in at least one-third of the cases. Aneurysm is nearly always syphilitic.

3. Pathologically, it is often impossible to differentiate between syphilitic and arteriosclerotic processes unless the causal organism or areas showing definite syphilitic pathology can be found. It is true that syphilis does not show calcification and that the process begins in the vasa vasorum of the media or even adventitia, but in the late stages certain diagnosis may be impossible.

4. A high percentage of coronary disease in persons under 40, and of aortic insufficiency at any age, is due to syphilis.

5. Mitral disease is so rarely syphilitic as to be negligible.

6. Acute syphilitic myocarditis is rare, but the chronic occurs in a high percentage of syphilitics; just how frequently it causes symptoms is a question.

7. There are two pathological pictures possible in syphilitic myocarditis, interstitial and primary of the muscle fibres. The second type is not in accordance with usual syphilitic pathology.

8. The diagnosis of syphilitic cardiovascular disease is most difficult; it must be assumed rather than demonstrated in the early stages.

9. Sudden death is so frequent in aneurysm, aortic insufficiency, coronary disease and myocarditis as to warrant fear that the shock of an arsphenamine reaction may be fatal. Halley has shown the frequency in aortic insufficiency.

10. Stokes-Adams disease at times is due to a gumma of the bundle of His.

11. Treatment cannot be expected to repair a badly damaged aorta, an aneurysm, a dilated aortic ring or damaged valves, or to strengthen a heart muscle that is infiltrated with much scar tissue.

12. Hence it is always necessary to employ rest, light occupation, freedom from occasional heavy work or strain, and heart tonics such as digitalis.

The following disputed or undetermined points of interest:

1. The so-called milk spots of the corium are thought by Brooks to be due to syphilis and comparable to leukoplakia, but Adami believes that they are the results of intermittent pressure.

2. Aneurysm of the heart is apparently due to coronary disease (Karsner), but whether it is always syphilitic is a question. Brooks considers it the commonest cause.

3. The percentage of syphilitic arteriosclerotic aortitis is still a question.

4. The preceding question is complicated by the frequent impossibility of differentiating between the two forms, even microscopically.

5. The possibility of aneurysm of the aorta being non-syphilitic is related closely to the preceding problem.

6. The fact that arsphenamine relieves the pain of anuerysm makes one doubt that pressure alone can be the cause of such pain, as is usually asserted. It might be thought that the periarteritis would be relieved and pressure thus reduced.

7. The percentage of cases of syphilitic aortic insufficiency is undetermined, but is associated with the question of the percentage of luetic aortitis.

8. The ratio of syphilitic to non-syphilitic coronary disease is likewise doubtful, even though it be conceded that syphilis is not the greatest cause.

9. The cause of sudden death in coronary disease is not fully explained or rather made

*Read before the University of Virginia Medical Society, October 4, 1929.

more doubtful by animal experimentation (Karsner).

10. The percentage of syphilitic to non-syphilitic myocarditis is questionable. A high percentage (85-90) of all syphilitic patients show myocarditis, but it is questionable if it is always due to syphilis.

11. The work of Warthin on the diagnosis of syphilis of the heart and elsewhere by means of demonstrating the spirochete, or of finding perivascular areas of infiltration with small round cells, has yielded such surprising results concerning the frequency and curability of syphilis that it would seem advisable to check up his remarkable results. It is doubtful if the type of pathology that he describes is pathognomonic of syphilis. One also wonders if his spirochetes are tissue fibrils or secondary invaders from the mouth.

12. Aortitis should be treated, but whether by arsphenamine or preliminary bismuth is a question. Wile fears that primary arsphenamine treatment may result in such rapid formation of scar tissue that compensation cannot take place. Schottmuller states that he has never had a bad result from arsphenamine and that all cases are curable.

13. The advisability of employing arsphenamine in aneurysm is questionable, there being fear of rupture in case of a Herxheimer reaction.

14. It is also questioned whether aortic insufficiency that can be recognized is ever helped. In fact, some excellent clinicians feel that the heart does not do well under arsphenamine.

15. Acute syphilitic myocarditis sometimes does well under intense treatment, but it is questioned by some men whether arsphenamine should be given.

16. In chronic myocardial disease the question of treatment is open to discussion,—the majority of clinicians opposing arsphenamine, at least until a preliminary course of mercury and iodides have been given. Reid states that there is danger of fibrillation because of (a) bad condition of heart muscle; (b) vagal stimulation; and (c) poor conduction, as shown by an altered T-wave of the electrocardiograph. Wile's views have been quoted.

17. The relation of the electrocardiograph to treatment of syphilitic cardiac disease is still questionable.

18. The relationship of syphilis to high blood pressure is also questionable.

Certain observations that the late Dr. H. P. Parker, Professor of Medicine at the Howard Medical School, his associates and myself were able to make may throw light on several of these problems. It should be remembered that the patients were practically all negroes.

1. In two cases of aneurysm of the heart, syphilis was present as indicated by history, clinical examination and laboratory reports.

2. In 145 consecutive cases of aneurysm, aortic insufficiency and supra-coronary aortitis, syphilis was present in all cases.

3. Following arsphenamine treatment and relief of pain in aneurysm, X-ray or fluoroscopic studies showed no diminution in the size of the growth.

4. Ten cases of supra-coronary aortitis were treated by arsphenamine with excellent results in nine, and no results in one.

5. Fifty cases of aneurysm were intensively treated by arsphenamine without a single bad result. In the patients we could trace the expectancy of life was markedly increased. The only fatality was in a patient whose aneurysm ruptured the night before treatment was to be begun.

6. Seventy-five cases of aortic insufficiency were treated—all late cases—and none showed either improvement or impairment of heart or general condition.

7. Two cases of acute syphilitic myocarditis were saved from death.

8. Eight cases of chronic myocarditis were neither hurt nor helped.

9. Two cases of heart block were cured.

10. Apparently high tension in young people who have not had malaria, scarlet fever or pneumonia, is usually associated with syphilis.

Comments

The time to treat cardiovascular syphilis is before there are any symptoms or physical signs—that is before an accentuated or tympanitic aortic second sound can be recognized and before an enlarged aorta can be recognized by the fluoroscope. It is generally agreed that prolonged early treatment is the best form of prophylaxis.

Once there are symptoms or physical signs, the patient's life must be properly regulated. It is always essential to have a physician thor-

oughly conversant with the heart to advise in these cases.

In aortitis it is probably wise to start with an initial course of mercury or bismuth and to follow with an additional course of a mild and well-borne arsphenamine. Silver arsphenamine can first be used, and then followed by neoarsphenamine in doses of .4g. to each 150 pounds of body weight.

Aneurysm cases stand arsphenamine remarkably well. The relief of pain is worth while, as also the increased expectancy of life.

Aortic insufficiency, once established, is not benefited, and may be made worse.

Acute myocarditis is particularly susceptible to energetic treatment.

Chronic myocarditis should be treated by an initial course of mercury or bismuth, later by small doses of arsphenamine if well borne.

1911 *R Street, Northwest.*

SOME UNUSUAL PROBLEMS IN SURGICAL DIAGNOSIS: ILLUSTRATED CASES.*

By T. JEFFERSON HUGHES, M. D., Roanoke, Va.

The diagnosis of surgical conditions present a field full of pit-falls and difficulties. It is, of course, not within the province of a short paper to discuss even a few cases at length.

A recent experience with a small group of cases which came under my observation impressed me with the difficulty one often meets in atypical surgical conditions, to the extent that I thought a brief report of these cases might prove of interest.

The differential diagnosis of many surgical conditions is, of course, subject to very fine discrimination, and it is often impossible, without exploration, to arrive at more than a conviction that we have an acute, sub-acute or chronic condition confined to certain localities requiring surgical treatment; or it may be that we often arrive at a rather positive diagnosis of one condition but recognize the probability of complicated or co-existing involvement of other organs.

It is among the most commonplace, and most easily diagnosed cases, that we make a wrong diagnosis. An acute perforated, gastric or duodenal ulcer may present a typical picture of appendicitis, provided the perforation is so located that the contents of the stomach or duodenum trickle down the right side of the peritoneum, producing an inflammatory condition in that locality. Again, a diagnosis of appendicitis may have been made only to find a cystic tube or ovary, a slowly leaking ectopic pregnancy, or a kink or stone in the right ureter.

With modern methods and diagnostic advantages we are able to make classical diagnoses in a vast majority of cases, but the abdomen should always be opened with the consciousness that a change in diagnosis may be in order.

This group of cases, presenting different phases of surgical diagnosis, will illustrate some of the difficulties met in atypical cases; and one of the cases will illustrate how unusual a surgical condition may present itself even after you open the abdomen.

Perhaps among the most difficult surgical conditions to diagnose are those which appear in children. The interpretation of subjective symptoms in the child is difficult, and one must rely almost wholly upon objective symptoms and laboratory findings.

In the recent epidemic of infantile paralysis in Roanoke, one of the first cases fell into my hands, a little fellow about nine years of age who was visiting in Roanoke, his home being in Galax, Va. He came to the hospital with a tentative diagnosis of appendicitis. The child was extremely ill and could tell very little about his feelings. He was very nervous and vomited everything he swallowed; his little abdomen was markedly rigid, and the tenderness appeared to be more pronounced on the right side of the abdomen. The leucocyte count was 17,000; urinalysis was negative. A policy of watchful waiting was decided upon, and within a few hours stiffness of the neck and back was noted and the reflexes became greatly exaggerated. A lumbar puncture was done. The spinal fluid was under marked pressure and the cell count was greatly increased, showing 90 per cent lymphocytosis and increased globulin. A diagnosis of infantile paralysis was made. Paralysis of the respiratory organs rapidly supervened, and the child died thirty-six hours after entering the hospital.

We recently had under observation a case presenting typical symptoms of sub-acute salpingitis. After a few days' rest in the hospital she was allowed to return home until a

*Read before the sixtieth annual meeting of the Medical Society of Virginia, at Charlottesville, Va., October 22-24, 1929.

more convenient time for her operation. Fortunately, her finances were such that, even though her condition did not apparently warrant it, she retained her special nurse and remained in bed at home. She returned to the hospital a week later for operation. Upon opening the abdomen, we were surprised to find an ectopic pregnancy which had ruptured, probably at the beginning of her illness, and the formation of a large clot controlled the hemorrhage.

Of three nephrectomies operated within a few days of each other, one presented the classical symptoms of appendicitis, and, according to the history, had never had a symptom referable to the kidney. It was interesting to note that our attention was directed to the kidney accidentally, before the routine urinalysis had been made. The patient was sent to the X-ray room by mistake, and the report was that she had a large irregular stone in the right kidney, whereupon a cystocopic examination was made which revealed a co-existing pyonephrosis.

Another case presenting an unusual clinical picture was a young travelling man, sent in from the hotel suffering excruciating pain which radiated from the region of the right kidney over the entire right lower pelvic region with its greatest severity directed to the bladder. The entire right side of the abdomen was as rigid as a board. Two hypodermics of one-fourth grain morphine, given one hour apart, failed to give complete relief from pain. The leucocyte count upon entering the hospital was 10,400, with 80 per cent polys. The kidneys were absolutely negative for blood and pus. The picture was one of either passing a kidney stone or perforated duodenal or gastric ulcer, leaking down the right side. There was no previous history of stomach trouble and the patient had never had any kidney trouble. A second leucocyte count, one hour after the first one, was 14,000. Feeling that we could safely eliminate the kidney, an exploratory, high, right rectus incision was made, and an acutely inflamed appendix was the only pathological condition found. The appendix was not post-cecal, nor was it bound down by adhesions as one would expect from the symptoms in this case. Had the urinalysis revealed the presence of even a few blood or pus cells, an unfortunate delay in operation might have occurred.

A case of unusual interest was a young lady presenting a history of thyroidectomy seven years previously and a laparotomy three years ago. She had not eaten solid food for eighteen months, and had been bed-ridden for sixteen months. She claimed she could not eat without agonizing pains in the stomach and abdomen which often threw her into convulsions. Her nourishment for the past eighteen months consisted of peptonized milk in small quantities. She was extremely emaciated and obstinately constipated. The only pathological condition we were able to demonstrate was a fecal impaction which was evidently of short duration. Complete gastro-intestinal X-ray study revealed nothing abnormal, and gastric analysis was negative. No amount of persuasion could convince her that she could take food, and if, by firm insistence, she took a few bites of soft diet, she would apparently suffer agonizing pains in the stomach and bowels. For the lack of a more definite term, we made a diagnosis of psycho-neurosis, but after ample consultation we decided to do an exploratory operation. We found a few omental adhesions resulting from her previous operation, but they were not of such a nature that one would suspect they would cause any material inconvenience. She made a rapid recovery, and on the third day after operation began eating everything given to her; in fact, it seemed impossible to satisfy her appetite with the usual regular tray. She left the hospital in two weeks, able to walk and feeling fine, and she is now in the country enjoying perfect health.

The last case in this report will long be remembered because of the feeling of uncertainty after opening the abdomen. A world-war widow of the British forces, about thirty-five years of age, came to operation with a diagnosis of a large fibroid uterus. Upon opening the abdomen and delivering the tumor we were surprised to find a large, smooth, soft uterus, bluish in color, and presenting a typical picture of an eight months' pregnant uterus. You would have to be placed under similar circumstances to appreciate our dilemma. We lost but little time, however, in deciding to make a uterine incision, not knowing whether we were going to do a Cesarean section or a hysterectomy. The diagnosis of a large fibroid uterus was confirmed, and the hysterectomy was completed.

XUM

DISCUSSION.

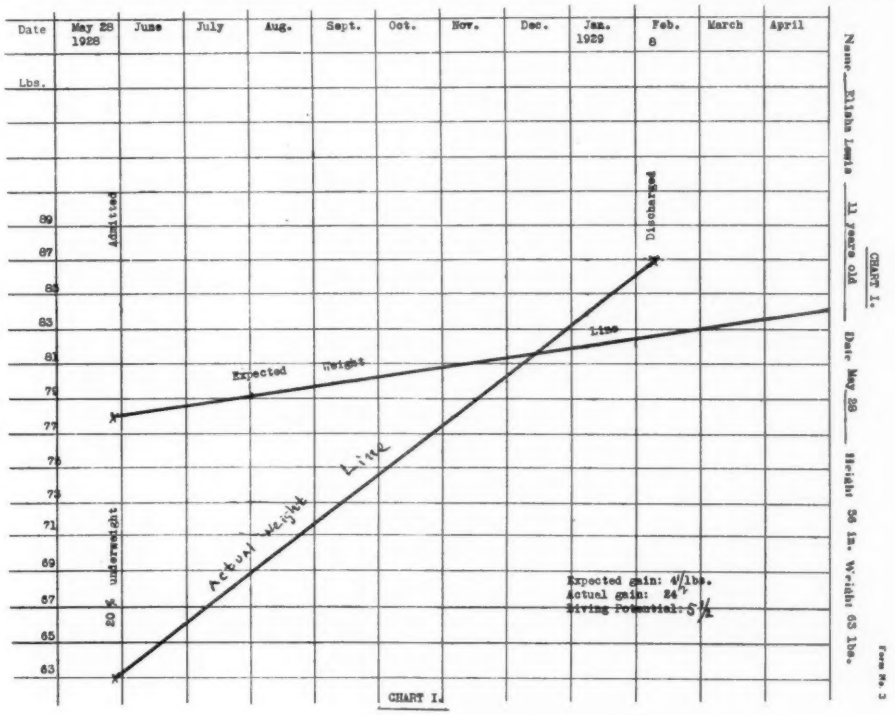
DR. FRANK HELVESTINE, Roanoke: Dr. Hughes has given us a paper on a very important subject—the differential diagnosis of lesions in the abdomen. Those who do surgery know that this is very often most difficult; there are a number of pathological conditions that occur in the abdominal cavity, particularly on the right side, whose signs and symptoms are at times very confusing, and it is hard to differentiate and tell what the condition is. Very often, as Dr. Hughes reported, we even get within the abdomen, and then are up against it as to the diagnosis. I happened to see a case in New York this summer where the surgeon was confronted with practically identically the same condition Dr. Hughes showed. He thought it was a pregnancy and put it back. Only time will tell whether it was a fibroid uterus or pregnancy, as he thought it was.

I enjoyed Dr. Hughes' presentation, and I think the cases which he showed were very instructive. As I stated, there are a number of conditions that are at times hard to differentiate, and a paper on this subject is always interesting and valuable.

A GRAPHIC PRESENTATION OF IMPROVEMENT OF NUTRITION IN A CHILDREN'S PREVENTORIUM.*

By SAMUEL NEWMAN, M. D., Danville, Va.

For practical purposes, gain in weight in a certain unit of time may be taken as the best index of improvement in all cases comprised by the terms malnutrition, undernutrition or hypotrophy. The health status of a child is therefore determined by his height-weight ratio.



The Balwin-Wood tables are probably the most commonly used in this country. It should be kept in mind, however, that any mathematical expression of the condition of nutrition is bound to be fallacious for the fundamental reason that children of the same height and age will vary in weight not only because of *nurture*, that is, different food habits and different caloric value of the respective diets, but also because of *nature;* by this we mean the inherent hereditary differences. The clinical picture of the child must be kept uppermost in the mind of the examiner.

From the standpoint of one dealing with larger groups of children, particularly in an institution, the accepted tables lend themselves very well for rapid review of the progress of the group as a whole. Since children in an institution are drawn practically from the same social stratum and are subject to the same

*Read at the sixtieth annual meeting of the Medical Society of Virginia in Charlottesville, October 22-24, 1929.

factors, such as rest, exercise, diet and medical care, the whole group of children can be viewed as a unit for the purpose of comparing results for different periods of time and with different groups of children. For that purpose, use should be made of graphic methods.

CHART I illustrates our procedure. The time period in months and the pounds of weight are simply laid out on the chart. The actual weight on admission and the expected weight on admission are indicated by points perpendicular to the date of admission. The expected

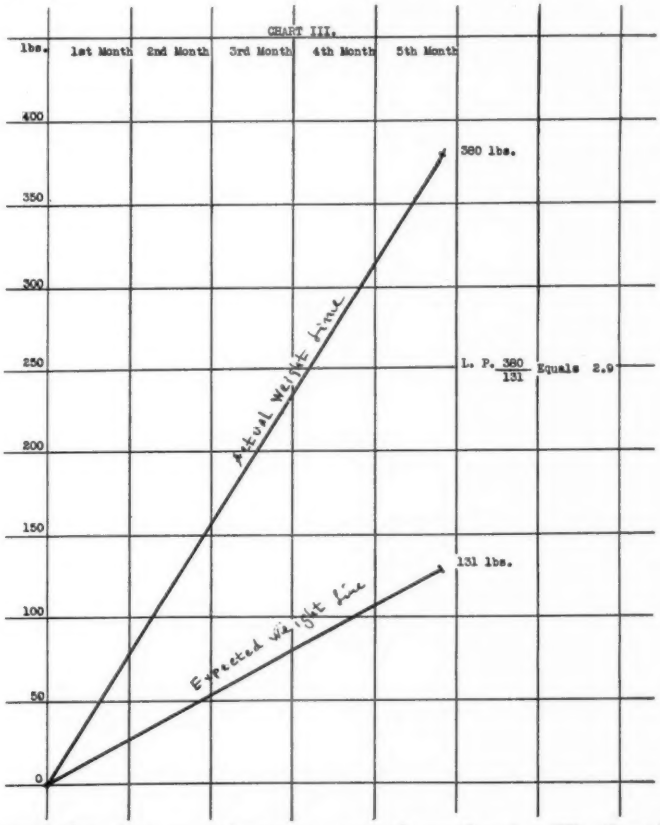
CHART II.

NUMBER	AGE	RESIDENCE IN PREVENTORIUM		EXPECTED GAIN POUNDS	ACTUAL GAIN POUNDS	LIVING POTENTIAL	V. PIRQUET	MANTOUX
		YEARS	MONTHS					
1	9		2	1.5	2.5	1.66		
2	11	1		10.	22.	2.2	Positive	
3	14		2	0.	6.	6.	Positive	
4	13	1	2	3.	17.	5.66	Positive	
5	11	1		7.	17.	2.40	Negative	
6	15	1	4	28.	25.	Less than normal	Positive	
7	8		7	2.5	2.5	1.	Negative	
8	14	1	5	10.	14.	1.4		Positive
9	8	1	1	6.	23.5	3.75	Positive	
10	10		4	2	3.	1.50		Positive
11	11		6	4.50	10.50	2.33	Positive	
12	11	1		5.50	28.50	5.	Negative	Negative
13	7		3	1	1.	1.	Negative	Negative
14	10		1	0.50	2.	4.		Negative
15	13		0.5	0.50	1.	10.	Negative	
16	14		2.	0.50	9.	18.	Negative	Negative
17	15		1.5	1	6.	6.	Positive	Positive
18	11		1.5	0.50	5.	10.	Negative	Negative
19	11		4.	3.50	14.	4.		Negative
20	6		10.	4.	12.50	3.		Positive
21	8		7	4.	21.	5.25	Positive	
22	3		9.5	3.	10.	3.33	Positive	
23	8		9	4.50	8.50	2.	Positive	
24	12		6	6.	15.	2.50	Negative	Negative
25	9			3.	13.50	4.50	Positive	
26	12		3	2.	8.	4.	Negative	
27	7		3	1.5	1.50	1.		Positive
28	12		3	1.	12.	12.	Negative	Negative
29	13		1	0.50	8.	16.	Negative	Negative
30	7		3	1.50	6.5	4.33	Negative	Negative
31	5		2	0.75	3.25	4.33	Positive	
32	8		5	2.25	4.50	2.	Negative	Positive
33	6		1.5	.50	0.50	1.	Negative	Negative
34	4		3.5	1.25	2.	1.6	Positive	Positive
35	7		3.5	2.25	1.	Less than normal		
36	5		1	.75	0.	Less than normal	Negative	Negative
37	8		3	1.50	3.	2.	Positive	
38	8		1	.50	3.75	4.50	Negative	Positive
39	13		2.5	1.50	9.25	6.16	Negative	Negative
40	8		.50	.25	1.50	6.		Negative
41	11		1.	.50	4.	8.	Negative	Negative
42	7		1.	.50	5.5	11.	Negative	Negative
43	7		3.	1.75	5.	2.8		Negative
44	10		2	1.	6.	6.	Negative	Negative
45	6		3.	1.25	4.75			

TOTAL NUMBER	AVERAGE AGE	AVERAGE TIME AT PREVENTORIUM	EXPECTED GAIN FOR WHOLE GROUP	ACTUAL GAIN FOR WHOLE GROUP	LIVING POTENTIAL OF WHOLE GROUP	PERCENTAGE OF TUBERCULIN POSITIVE CHILDREN
45	9.44	4.8	131	380	3.	0.44 (44%)

weight for this particular child a year hence is read off from a table and is indicated by a point. A line drawn between the expected weight at time of admission and the expected weight a year hence is called the *expected weight line.*

The *actual* gain in weight is represented by a series of points at the intersection of the weight and date lines. These points are connected to form a line. This line is designated as the *actual weight line.*



It is common knowledge that an undernourished child can gain faster per pound or kilogram of body weight when the causative factors of the condition of malnutrition are removed than a normal child of the same age and height. In dealing with large groups of children, a standard of comparison becomes necessary whereby this rate of gain can be expressed in mathematical terms of *unity.* For this purpose I am introducing the term of *living potential* which I have borrowed from Escherich, the predecessor of V. Pirquet, at the Children's Clinic of Vienna. By this term is meant "the ability of every living organism, by virtue of assimilation, to sustain itself; to grow; and to reproduce its kind." In our case we operate with the term *living potential* to mean the actual gain of a child as compared with its expected gain. Reference to *Chart I* will show that the expected gain for the eight month period that the child spent in the institution was 4.5 lbs. The actual gain was 24 lbs. Hence, 24 divided by 4.5 equals 5.5 (in round numbers). We therefore say that the *living potential* of this particular child was 5.5.

CHART II gives a review of the nutritional result of a group of 45 children at the Preventorium. The average age of the group is roundly 9½ years. The average period of residence at the Preventorium is roundly 5 months. The expected gain of the whole group is 131 pounds; the actual gain is 380 pounds. This represents a *living potential* of 3. Forty-four per cent of this group showed a positive tuberculin test. Only one of this number did not

gain what was expected of him in accordance with the weight tables.

Graphically, the nutritional result for the whole group of 45 children may represented by *Chart* III.

References to *Chart* II will show that the average residence of each child at the Preventorium was 4.8 months. The average gain of each child is derived by dividing the total gain for the whole group, 380 lbs., by the total number of children, 45. This gives an average gain 8.5 pounds. The question will naturally arise whether this average gain represents the *minimum*, *optimum*, or *maximum* gain possible to attain in an institution of this kind. In comparing results with other institutions one must be very careful to note whether the clinical material is the same and whether the same factors or means of treatment are operative in both cases. Thus far I have been able to obtain the record of only one institution which can serve us as a critical comparison.[1] The clinical material, the physical equipment of the plant, the procedure as regards heliotherapy, rest and recreation, are similar to our institution, yet the average gain for a period of eight weeks in that institution is over 7 pounds, while the average gain in our institution for a period of 4.8 months is 8.5 pounds! What factor, then, is responsible for not obtaining in *our* institution optimum results? The factor of diet is probably the one to be considered if better nutritional results are to be obtained in our institution, though the results at present are far better than those of a similar group of children in private practice. From the standpoint of economics it would seem poor economy to keep down the daily cost per child in the institution if the goal to be achieved in the care of children in such an institution is the bringing them up to normal health, which simply means their attaining normal weight. If by doubling the cost of diet it is possible to shorten the length of time necessary to bring up a group of children to normal weight, it will be possible to extend the benefits of the institution to possibly twice or thrice as many children for the same period of its operation.

Summary.

1. Practically every malnourished child can attain a satisfactory nutritional level in an institution specializing in this kind of work.

2. The means or factors at the disposal of such an institution are a physical plant, heliotherapy, fresh air, rest and recreation, diet, and trained supervision.

3. From the standpoint of medical and lay supervision, complete graphic charts should be kept of each individual case and a graphic record should be compounded for the whole group.

4. The term of *living potential* is introduced in nutrition work as means of establishing a *unit* of comparison.

5. Further study and research are necessary to establish the best means and factors operative for the bringing about of *optimum* nutritional results in the shortest possible time both as a medical and economic problem in children's institutions. In other words, how best can a satisfactory *living potential* be obtained?

Reference.

1. Lowell Fights Undernourishment Amongst Its School Children. *Am. J. Pub. Health*, Vol. XIX, No. 6, June, 1929.

Arcade Building.

Discussion.

Dr. Lawrence T. Royster, University: I am going to commend Dr. Newman on his attitude toward the proper handling of children in an institution which is excellent. Children are individuals, as are adults, and are not to be handled as masses. We must realize that there are other factors than the individual child, as paradoxical as that may seem. We are accustomed to looking upon racial traits and upon familial traits and are too often guided by those thoughts and think of those children as being of a certain racial and familial stature. When a child-welfare clinic is held and when we recommend certain cases to be looked after because of their weight and nutrition, all too often the family doctor says: "Look at his father; that is all foolishness." It is not so often a familial trait as it is the result of faulty food habits on the part of the parents which are passed on to the children. We know that obese children are often the offspring of obese parents, not always because of any deficiency of the thyroid, but because they eat the same kind of food which their forbears eat.

So far as institutions go, you can control children by an expectancy figure; Dr. Newman is right on that; and that is the ideal way to control children in an institution; but most of us have to deal with children in their homes. Remember this; a child may gain so many pounds in so many weeks or months and actually have lost. If a child has gained five pounds when he has grown two or three inches and should have gained nine pounds, actually the child has lost. We need to know a little bit more about the biology of the individual cells in its relation to metabolic processes A child so many inches in height should have so many pounds of weight, irrespective of its parents or where it lives and of racial traits or tendencies.

TREATMENT OF NEGLECTED OR LATE CASES OF APPENDICITIS.*

By S. B. MOORE, M. D., Alexandria, Va.

Possibly I should apologize for writing on this subject. I believe it is our duty to face criticism and make every effort to improve our work. A full discussion by this body of medical men should bring some extra light on the subject. With modern technique as employed by the surgeons of today, we should devise some means of reducing the high mortality. The early cases are treated with a mortality rate practically nil. But there is a different story in the late or neglected cases where there is a perforation, localized abscess, or progressive peritonitis. Many blame the medical man, especially the country doctor. Many of us practiced in the country before going to the city and know from experience what he has to contend with. Many surgeons are writing what they term educational papers for the benefit of the doctors in out-lying districts. It is not the doctor, but his patients that should be educated. Frequently, the doctor does not see this class of cases until after the family has tried out all the home remedies, including some drastic cathartic, and frequently there is a peritonitis. This is perhaps the greatest single factor in the increased mortality from appendicitis.

About 40 per cent of the cases that the surgeon sees are late cases. There are three (3) factors in this blunder. Frequently the physician is one, the patient another, then the ever present hypocritical over-emotional relative who is running the whole show and wishes to have you explain over and over the seriousness of the case, and why the necessity of operating at once.

The gradual evolution of treatment of acute appendicitis within the last thirty-five years has taught the medical profession that it is a surgical and not a medical disease. As soon as we can make a diagnosis, do not try to get all the classical symptoms. In practically all cases there will be some symptoms missing. I believe fever is the least important of them all. Pain which becomes localized around McBurney's point, with nausea or vomiting, recto-spasm, and increased white count, are the set of sypmtoms to be depended upon in the majority of cases. It is well to make a vaginal examination in women and a rectal examination in many, especially in small children or where you suspect pelvic involvement.

Between 1886 and 1915, many articles on acute appendicitis appeared in medical literature. Since that period you will find very few articles in the journals, and these are on some special condition or case reports of some abnormality. Since 1915 there has been an increased mortality from appendicitis. Vital statistics show that 25,000 individuals died from appendicitis in the United States last year. In fact, the mortality rate from appendicitis now exceeds the combined mortality rate from ulcer of the stomach and duodenum, gall-stones, diseases of the pancreas and spleen, goitre, ectopic pregnancy, salpingitis and pelvic abscess.

In early uncomplicated cases, the mortality is less than 1 per cent. In the complicated or late cases, the mortality ranges from 5 to 30 per cent. A probable cause of increased mortality in simple appendectomy, it is no longer considered by some doctors a major operation and is attempted by inexperienced operators. In the past, many of the end results of neglected appendicitis were charged, not to the appendicitis but to some other troubles, namely, perinephritic abscess, liver abscess, septic pneumonia, etc. As our diagnostic skill has improved and with the aid of well equipped laboratories, we make fewer mistakes of this type.

There are three (3) very good rules to follow in any type of acute abdomen and especially in acute appendicitis:

1. Never give a dose of morphine until you have made a diagnosis—it masks symptoms, fosters the spirit of procrastination which has done more toward increasing the mortality of appendicitis than any one factor. You may give it after you have made your diagnosis.

2. Close the mouth and keep it closed, no food, no cathartic, in fact, nothing by mouth. This is to prevent peristalsis. Give Murphy drip or any other method, but keep out of the mouth.

3. Never give a cathartic in acute abdomen and start up peristalsis; this will cause a perforation in an acutely inflamed appendix.

When the diagnosis of acute appendicitis has been made, operation should be performed at the earliest possible moment, *unless* the pa-

*Read at the meeting of the Medical Society of Virginia, Maryland and District of Columbia, in Washington, D. C., November 13, 1929.

tient is extremely ill with the following symptoms—low blood pressure, high temperature, or sub-normal temperature with coldness of extremities, with distention predominating over rigidity, with diminished pain and silent abdomen. If you operate with this train of symptoms, your mortality rate will be increased. Use the Ochsner treatment with all the extra frills at your command.

Osler's statement is an excellent one for the doctor to remember, whether his leanings be toward the conservative or the radical method of treatment, that "the surgeon is often called too late, never too early."

In the past eighteen months, in my service at the Alexandria Hospital, I operated on 164 cases of acute appendicitis, some of them late or neglected cases. There were 103 cases of acute appendicitis without perforation or pus formation—with no deaths, while twenty-six were gangrenous with fecoliths, many of these having perforations—with no deaths. There were also twenty-eight cases that were abscessed and walled off, the appendix being removed in all of these—with no deaths. Seven cases had peritonitis of different types. There was one death in the hospital. One very old emaciated lady with bad heart, partially paralyzed, due to apopletic stroke about three years before, with the cecum partially gangrenous and the appendix a soft gangrenous mass, was sent home with a fecal fistula, and died about two months later.

I do not expect to add any new method of operation. I believe, as Jno. B. Murphy once said, "get in quick and get out quicker." The rapid, skilful operator will save more lives than the slow deliberate one.

I wish to emphasize a few points in abscess cases where there is a preponderance of colon bacilli. I build a coffer-dam of gauze pads, protect my abdominal wall with gauze, break in and wipe out the pus, remove the appendix, which I then tie off with black linen. I do not attempt to use a purse string suture; in fact, I have not used one for the past three years. Oozing is stopped by use of a few hot pads. I do not mean warm, but hot—120 degrees. I follow this with an ether mop out, then refill with ether and mop out again, after which I put in my drain tube and close the wound.[1] The patient is placed in a well warmed bed, and salt solution is started. When the patient recovers from the anesthetic, he is placed in the Fowler position, Murphy drip is started. Morphine as necessary is given hypodermically, and nothing by mouth.

I do not drain as many cases as I formerly did, as I find the peritoneum will take care of itself if you give it a chance.

The Retrocecal Appendix: Operation for this condition in very fat or pendulus abdomens is rather a difficult procedure. I do what Crile calls the "Robin Operation." Frequently you cannot deliver the distal end first. It is much easier to remove it backwards.

Post-operative complications have been greatly reduced with early operation and improved after-treatment. I will consider a few of these here. I recently treated a case of pelvic abscess. About one week after operation, this was a peritonitis case, temperature gradually ran up, bowels at first were moved with enema, but caused considerable pain. There was constant pressure. Later the bowels would not move and the enemas would not return. I made a rectal examination and found great intra-abdominal pressure. With my finger in the rectum, I passed a curved hemostat in the rectum, forced it through the bowel and opened the abscess, thereby giving instant relief. As soon as abscess drained off, the bowels moved freely, and the picture changed from a very sick little patient to one that could smile and say, "Oh! what a relief!"

In fecal fistula keep the wound clean. I do not hesitate to perforate the bowels, if necessary. A great majority will get well without interference.

The diagnosis of subphrenic abscess at the outset is difficult; it is usually right-sided, there is pain on deep breathing, and the temperature runs up in about two or three weeks. X-ray shows higher diaphragm on the affected side with lessened movement. An air bubble just beneath the diaphragm is diagnostic. The best surgical approach to right-sided abscess in this condition is to resect the 9th and 10th ribs in mid-axillary line, splitting fibers of the diaphragm below the pleural reflexion, and to enter the abscess from beneath the diaphragm.

There are many other complications we may discuss later, when the time is not so limited. However, I hope this may start a discussion

1. Ether will kill colon bacillus in few seconds.

that will develop something new—at least, to some of us.

811 *Prince Street.*

STUDIES IN THE USE OF AMYTAL AS A GENERAL ANAESTHETIC.*

By
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Sodium iso-amyl-ethyl barbituric acid is beginning to attract much attention as to the possibilities for its use as a general anaesthetic.

Dr. William J. Mayo, in the Editorial Department of the January number of *Surgery, Gynecology, and Obstetrics*, states that with the new anaesthetics, for instance, the sodium salts of barbituric acid and others of that type, we at least have achieved a scientific method of injecting the anaesthetic intravenously, thereby relieving the lung and other organs of certain dangers to which we have become so accustomed as almost to have forgotten the reason for their existence. "Our experience," he says, "with sodium iso-amyl-ethyl barbituric acid demonstrates that direct methods of producing anaesthesia may soon be expected, which in connection with the approved methods of producing regional anaesthesia will relieve the patient of unnecessary dangers to unoffending organs. Certainly as far as sodium iso-amyl-ethyl barbituric acid is concerned the speed with which the patient drops asleep and the freedom for some hours after operation from all painful sensations has led many patients who have had unpleasant experiences with general anaesthetics to plead to be operated upon under this newer form."

We began to experiment with amytal for use as a general anaesthetic and for use as a relief for convulsive disorders at the State Colony for Epileptics and Feeble-Minded on December 19, 1929, and up to the present time have used it in eleven cases of abdominal surgery and nine cases of epileptic status, with what we thought to be rather amazing results; the drug has also been used to relieve the pains of parturition with satisfactory results.

For intravenous use it is prepared by the manufacturing chemists in the form of white crystals sealed in glass ampoules, and for oral administration as a white powder in capsules of three grains each. A 10 per cent solution has been found quite satisfactory for intravenous administration and is made by dissolving the crystals in sterile, distilled water from which a clear solution should result. If it is at all opaque it should be discarded; nor should it be allowed to stand for any length of time after mixing as very material chemical changes occur when the drug is allowed to stand in solution.

It has also been used intramuscularly with success, but of course its action is not as rapid by this means as when injected directly into the blood stream. The rate of injection should probably not exceed about one cubic centimetre per minute. We have felt it important to adhere to this and have not experimented with a more rapid injection.

The amount of the dose is based upon the body weight of the patient, and may be regulated so as to produce different depths of anaesthesia. For surgical purposes 15 to 25 milligrams (¼ to 1/3 grain) per kilogram of body weight has been found sufficient. The lethal dose for man is unknown, and Dr. Mayo states that in several hundred cases in which amytal was used in their clinic no deaths could be attributed to it. But in view of the fact that the lethal dose is unknown, extreme caution should be used in its administration. So far as we know at the present time, a maximum dose of 25 milligrams per kilogram of body weight should not be exceeded.

The cases reported in this paper were inmates of the State Colony for Epileptics and Feeble-Minded and the eleven upon whom major surgery was performed had been selected for eugenical sterilization as provided for under Chapter 394, Acts of the Assembly, 1924. All were females and a routine salpingectomy and appendectomy was performed in each case through a midline incision.

The usual pre-operative preparations were observed, and in part of the cases ¼ grain of morphine sulphate with 1/150 grain of atropine sulphate was administered hypodermically one-half hour before beginning the operation. In the others, 10 grains of chloretone also was administered by mouth two hours before operation.

In our hands the use of chloretone in addition to morphine and atropine was found to be much more satisfactory; and in several of these cases it was possible to perform the en-

*Read at a meeting of the Lynchburg and Campbell County Medical Society.

tire operation without the use of a single drop of ether.

On administration of amytal in a 10 per cent solution at the rate of one cubic centimetre per minute the following effects were observed: anaesthesia was rapidly produced without any intervening state of excitement; deep sleep came within three to five minutes, and surgical anaesthesia was complete in about twenty minutes following the injection. The respirations were at first decreased in amplitude and rate, but were regular and in about one hour the rhythm was normal. The blood pressure was reduced in range from 15 to 30 mm. during the injection, but soon regained its normal level. All of the patients retained a normal coloring of the skin throughout the anaesthesia, and the appearance of the individual reminded us of one in a deep hypnotic state.

The length of time consumed in performing these operations ranged from twenty-three to fifty minutes each, the complete anaesthesia lasting throughout this time and the patients remaining in deep sleep from five to fourteen hours after coming from the operating room. There was no nausea and no vomiting in any case, nor was there any delirium as is said to sometimes occur; our patients awakening in complete possession of such mental faculties as they normally possessed, and being able to recall incidents clearly up to the time that they began to fall asleep. Mental shock was absent and other cases have begged to be given the same anaesthestic in the event that they should be operated upon.

In those in which amytal was used alone, the patients were slightly sensitive to skin incision; and also somewhat sensitive to traction on the peritoneum, nor was there complete muscular relaxation, about two ounces of ether being required in each of these to produce a satisfactory surgical anaesthesia. In the three cases in which 10 grains of chloretone was given by mouth two hours beforehand, no other anaesthetic was required. In one of these muscular relaxation was as complete as the deepest ether anaesthesia; in another the muscular relaxation was fair; and in a third there was slight resistance when the skin incision was made.

In all of our cases the anaesthetic was administered in the patient's room and none has any recollection of being transported to the operating room, nor have they any recollections of the proceedings at all from the time that they began to fall asleep. All had smooth, uneventful convalescences.

You will note from the following records kept by the anaesthetist during the operation and of the immediate post-operative period, the phenomenally smooth and uneventful course which these cases pursued:

PATIENT: Mary H.—.

Date of Operation: December 19, 1929.

Operation: Appendectomy and sterilization.

Place of Operation: Infirmary of the State Colony for Epileptics and Feeble-Minded, Amherst County, Virginia.

Pre-Anaesthetic Narcotic: ¼ grain morphine sulphate; 1/150 grain atropine sulphate.

Anaesthetic: Amytal and ether.

10:26 A. M.: Administration of 900 mgm. of amytal intravenously begun. Temperature 98.6; pulse 104, respiration 20.

10:37 A. M.: Administration of amytal ended: pulse 108; respiration 15.

10:41 A. M.: Pulse 84; respiration 11; color good.

10:51 A. M.: Pulse 80; respiration 11.

10:56 A. M.: Operation begun and a small amount of ether given.

11:07 A. M.: Operation proceeding without difficulty: pulse 72; respiration 16.

11:10 A. M.: Blood good color; no abnormal tendency to bleed; patient in good condition.

11:12 A. M.: Appendix removed without difficulty; the necessary traction on the colon did not seem to cause any pain. Patient thoroughly relaxed at this time. Traction on the uterus and resection of the uterine end of the fallopian tubes performed without stimulating any movement on the part of the patient, other than respiration became deepened. Pulse 88; respiration 22.

11:18 A. M.: Patient slightly paler and muscles a trifle rigid; a slight movement noted on suturing the peritoneum. Patient's general condition is good. Pulse 98; respiration 20.

11:28 A. M.: The patient made a slight movement on placing traction sutures through the skin and fascia and offered some slight resistance.

11:33 A. M.: The operation ended with the pulse 96 and the respiration 22: the patient's body was warm, and her color good, although she was slightly pale. The blood pressure at this time was systolic 120, diastolic 80; pulse pressure 40.

There was no evidence of shock, and about 1 ounce of ether was used when making the skin incision, as this seemed to be somewhat sensitive.

PATIENT: Winnie E—.

Date of Operation: January 8, 1930.

Operation: Appendectomy and sterilization.

Weight: 94 pounds equals 44 kilograms. Was given 1000 mg. amytal which equals 23 2/3 mg. per kg. body weight.

11:27 A. M.: Administration of amytal begun; pulse 104; respiration 20.

11:30 A. M.: Patient very drowsy.

11:32 A. M.: Patient asleep; pulse 130; respiration 20.

11:38 A. M.: Administration amytal ended; pulse 130; respiration 20.

Patient sound asleep; color rosy, condition good.

11:45 A. M.: Color rosy; condition good; pulse 130; respiration 20.

11:47 A. M.: Small amount of ether given; operation begun; pulse 136; respiration 22.

11:51 A. M.: No movement on skin incision, but patient took a deep breath; muscles twitched once on abdominal incision, but no resistance. Peritoneum opened with no resistance with only a deepening of respiration. Caecum and appendix brought into wound without difficulty and with no resistance on the part of the patient.

11:55 A. M.: Relaxation good; patient quiet and in good condition. Appendix found to be free; removed by cautery and stump inverted.

12:01 P. M.: Uterus found to be small, but no pathology found in pelvis.

12:02 P. M.: Deepened respiration upon clasping uterus and pulling it into wound. Pulse 140; respiration 32. Pulse regular and of good quality; condition of patient good.

12:07 P. M.: Patient's only resistance so far has been deepened respiration on traction of peritoneum. Peritoneum closed. Patient groaning but no resistance; no bulging of the intestine.

Attention is called to the fact that while well-grown, this patient is but fifteen years old. Attention is further called to the pulse rate which remained rapid throughout, though of good quality. Respiration apparently not affected. Slight resistance by movement of leg while tying superficial vessel. No resistance through operation which interfered with operator's work.

PATIENT: Leona C—.

Operation: Appendectomy and sterilization.

Patient's weight, 129 pounds equals 58 kilograms. Given 1000 mg. amytal which equals 17 1/3 mg. per kg. body weight.

January 8, 1930.

11:17 A. M.: Injection of amytal begun; pulse 84; respiration 20.

12:21 P. M.: Patient asleep.

12:28 P. M.: Injection of amytal ended; pulse 96; respiration 20.

12:41 P. M.: Small amount of ether given.

12:43 P. M.: Operation begun; patient moved; pulse 92; respiration 20, use of ether continued.

1:03 P. M.: Appendix found to be free and removed by cautery. Stump inverted in the usual manner. Patient well-relaxed and in good condition. Pulse 112; respiration 28.

1:36 P. M.: Operation completed; patient in good condition. Four ounces of ether were given along with the amytal.

PATIENT: Evelyn B—.

Weight 105 pounds equals 48 kilograms.

Anaesthesia: Amytal 1000 mg. equals 21 mg. per kg. body weight.

Hypodermic: Morphine sulphate, given at 10:00 A. M.

11:33 A. M.: Pulse 140; respiration 21; blood pressure 125/76; anaesthesia begun.

11:46 A. M.: Injection ended; pulse 120; respiration 16; blood pressure 85/60; patient apparently asleep.

11:55 A. M.: Pulse 120; respiration 16. Patient apparently asleep but moved when towel clips inserted. Respiration was rather shallow. Skin infiltrated with 1 per cent procaine. Procaine poorly infiltrated into skin.

12:01 P. M.: Pulse 108; respiration 16. Operation begun; patient moved when skin incision was made and also when peritoneum was incised. There was not complete abdominal relaxation.

12:12 P. M.: Pulse 112; respiration 16. The appendix higher up and posterior was delivered only by much traction which caused pain.

12:13 P. M.: Small amount of ether given. All through the operation a small amount of ether was given in order to obtain relaxation, about 2 ounces in all being given.

12:46 P. M.: Operation ended. Pulse 108; respiration 24; blood pressure 118/75.

The anaesthetic in this case was the least satisfactory of any case so far. Patient was more sensitive to pain. It was necessary to

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give small amounts of ether at frequent intervals to obtain proper relaxation of the abdominal muscles; muscles relaxed only when getting ether.

At no time in any of the three cases in which amytal has been used, either before or during and so far after operation, has there been any, or even slight, alarming symptoms.

At 5:00 P. M. moved her legs and her head from side to side; however, patient was not awake.

At 10:00 P. M. patient was restless, twisting in bed, and muttering, complaining of pain.

At 10:15 patient was given ¼ gr. morphine sulphate hypodermically, and then slept until 6:00 A. M.

Patient at no time vomited or was nauseated; neither did she complain of gas pains, nor did she perspire.

This is the third day after operation. Patient's convalescence has been comfortable; at no time has she vomited or complained of nausea; nor has there been any perspiration. The only complaint patient has made since operation has been from the tightness of her bandage.

(Note). Both this patient and another had taken ether for previous operations. Both have stated that, if ever they have to be operated on again, they would much prefer amytal to taking ether.

PATIENT: Ella L—.

Weight, 97 pounds, equals 44 kilograms.

Patient operated on January 8, 1930. Anaesthetic: Amytal and ether. 1000 mg. amytal injected equals 23.66 mg. per kg. body weight.

10:30 A. M.: Injection begun; pulse 80; respiration 18.

10:35 A. M.: Patient asleep; pulse 68; respiration 18.

10:47 A. M.: Injection ended; pulse 68; respiration 20.

10:57 A. M.: Ether begun; patient struggled slightly.

11:00 A. M.: Operation begun; slight struggle when skin incision made. Peritoneum incised and handled with no resistance on part of patient. The appendix removed in usual manner by cautery and stump inverted. Uterus retroverted, but otherwise normal; adnexa normal.

11:10 A. M.: Patient pale, but in good condition. Moved legs and grunted when traction made on peritoneum.

11:20 A. M.: Peritoneum and fascia closed with no resistance of patient. Patient moved slightly when silk-worm sutures placed in skin. Black silk sutures placed in skin caused slight resistance.

11:25 A. M.: Operation ended. Pulse 64; respiration 18. About 1½ ounces of ether used during operation.

Patient slept six hours following operation, and when awakened, was easily quieted with a hypodermic of morphine sulphate, gr. ¼.

Patient made an uneventful recovery from operation.

PATIENT: Annie L—.

Appendectomy and sterilization.

Weight 99 pounds, equals 45 kilograms.

1000 mg. amytal given equals 22 2/9 mg. per kg. body weight.

11:16 A. M.: Anaesthesia started; pulse 140; respiration 16.

11:26 A. M.: Anaesthesia ended; patient was asleep in four minutes; pulse 135; respiration 20.

11:32 A. M.: Patient stirred on application of alcohol to the skin.

11:34 A. M.: Resists towel clips slightly.

11:38 A. M.: Small amount of ether given.

11:45 A. M.: 1 gr. ether given, incision made, slight resistance. Pulse 135; respiration 28. Traction on appendix and caecum caused no resistance; patient well-relaxed.

11:53 A. M.: Moaned on delivery of the uterus, but no resistance offered. Uterus enlarged and retroverted. Appendix removed and the tubes resected.

12:00 M.: Operation completed and abdomen closed without difficulty.

12:05 P. M.: Pulse 135; respiration 18.

12:08 P. M.: Patient removed from operating room. Pulse 108-110; respiration 20. General condition: excellent.

PATIENT: Lilly H—.

Operation: Sterilization only, appendix removed in previous operation. Weight, 116½ pounds equals 53 kilograms.

Patient operated on January 15, 1930. Anaesthetic: Amytal and ether. 1000 mg. amytal injected equals 18.9 mg. per kg. body weight.

12:09 P. M.: Injection begun; pulse 100; respiration 19.

12:14 P. M.: Patient asleep.

12:20 P. M.: Injection ended; pulse 92; respiration 16.

12:35 P. M.: Pulse 84; respiration 12.

12:40 P. M.: Use of ether begun.

12:46 P. M.: Incision made; patient resisted strongly.

12:53 P. M.: Patient relaxed; more ether given.

1:05 P. M.: Patient resisted when peritoneum was incised, and more ether was given; pulse 88; respiration 24.

1:13 P. M.: Operation finished. This patient was operated on for sterilization only; the appendix having been removed in a previous operation. About 1½ ounces of ether were used during the operation.

Patient slept several hours after operation, and when awakened, was easily quieted with a hypodermic of morphine sulphate, grain ¼. She made an uneventful recovery.

Amytal as an anaesthetic was very unsatisfactory in this operation.

PATIENT: Rose E—.

Operated on January 22, 1930.

Chloretone, gr. 10. given by mouth two hours before operation.

Morphine, gr. ¼; atropine 1/150, given hypodermically one-half hour before operation.

Weight, 105½ pounds equals 48 kilograms.

Amytal 1,000 mg. given equals 20.8 mg. per kg.

11:10 A. M.: Injection begun; pulse 96; respiration 21.

11:15 A. M.: Patient asleep; pulse 104; respiration 19.

11:35 A. M.: Pulse 112; respiration 20.

11:38 A. M.: Incision made without resistance; peritoneum incised without resistance; patient well-relaxed.

11:48 A. M.: Appendix delivered with difficulty, but caused no resistance; removed in usual manner by cautery and stump inverted. Pulse 116; color good; condition good, and patient had not moved.

Uterus and adnexa normal; sterilization done in usual manner.

Incision closed in layers in usual manner with no resistance of patient.

12:05 P. M.: Operation ended. Pulse 120; respiration 20; color good, and patient in good condition. There was good relaxation and the patient was well under the anaesthetic throughout the operation.

Patient slept several hours following the operation; easily controlled with a hypodermic, morphine ¼ gr. Patient made an uneventful recovery.

PATIENT: Mary C—.

Operated on January 22, 1930.

Chloretone gr. 10 given two hours before operation.

Morphine gr. ¼, atropine 1/150, given hypodermically one-half hour before operation.

Weight 81½ pounds equals 37 kilograms.

Amytal 900 mg. given equals 24.3 mg. per kg.

12:03 P. M.: Injection begun; pulse 132; respiration 18.

12:09 P. M.: Patient asleep; pulse 128; respiration 16.

12:30 P. M.: Patient asleep and in good condition; pulse 132; respiration 16.

12:34 P. M.: Incision made. Only deepened respiration noticed on part of patient.

12:40 P. M.: Patient slightly rigid and straining; appendix delivered without difficulty, and removed in usual manner by cautery and stump inverted. Uterus and adnexa normal; sterilization done in usual manner. Incision closed in layers; no resistance of patient.

1:10 P. M.: Operation ended; pulse 116; respiration 16. Color good and patient in good condition. Anaesthetic was satisfactory during the entire operation, but patient not as well relaxed as the preceding one.

Patient slept several hours following the operation, easily controlled with a hypodermic: morphine ¼ grain. Patient made an uneventful recovery.

PATIENT: Bessie S—.

Operated on January 22, 1930.

Chloretone gr. 10 given two hours before operation.

Morphine, gr. ¼, atropine 1/150, given hypodermically one-half hour before operation.

Weight, 85 pounds equals 38.6 kg.

Amytal 950 mg. given equals 24 mg. per kg. body weight.

12:50 P. M.: Injection begun; pulse 120; respiration 24.

12:55 P. M.: Patient asleep; pulse 118; respiration 22.

1:04 P. M.: Injection ended, patient alseep; pulse 104; respiration 18; color good.

1:26 P. M.: Incision made; patient kicked and respiration deepened; ether begun, ½ ounce given; patient well-relaxed. Appendix normal and removed in usual manner by cautery and stump inverted. Uterus and adnexa normal; operation done in usual manner. Inci-

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sion closed in layers without resistance of patient, but only deepened respiration.

1:55 P. M. Operation ended; pulse 128; respiration 121. Patient in good condition all through the operation, good relaxation, ether ½ ounce given during operation.

Patient slept several hours following the operation; easily controlled with a hypodermic, morphine ¼ grain. Patient made an uneventful recovery.

We have found amytal to be an extremely useful drug in controlling the convulsions in status epilepticus. This condition in which there are rapidly recurring seizures, accompanied by profound stupor, high temperature and extreme prostration, is most generally fatal unless the seizures can be promptly arrested, death supervening as a result of cardiac dilatation or pulmonary edema. The usual treatment of continuous hot baths and spinal puncture or general anaesthesia, or sodium luminal intravenously, is ineffective in many cases; as the seizures have a tendency to recur as soon as the anaesthesia wears off.

In nine cases of serial convulsion in which amytal has been used there were nine recoveries. The quantities of the drug used ranged from 10 to 20 mgs. per kilo body weight. The convulsions ceased after 3 to 4 cubic centimeters had been injected, and the patients remained asleep from five to ten hours, following which the convulsions did not recur, until the next period for an attack.

The intravenous administration of any drug as potential as amytal and which has a prolonged continuous effect should have an antidote, and for this purpose the injection of ½ to ¾ grain of ephedrine sulphate, followed by from 7½ to 15 grains of caffeine sodium benzoate, is said to cause the patient to awaken promptly, and to be an effective antidote. We have, however, not had occasion to use this treatment in our small series.

Summary

1. From our experience we conclude that amytal is a powerful and effective anaesthetic; that it can be used alone, but more effective results can be obtained by preceding its administration with chloretone by mouth.

2. We have found it more effective than any other drug that has come under our observation up to the present time for the control of convulsions in a series or of status epilepticus.

3. There are, in so far as we have been able to observe, no pernicious after-effects.

4. Up to the present time no certain contra-indications for its administration have been charted.

5. It can be administered orally, intramuscularly, and intravenously with safety, by observing ordinary precautions and keeping within the limit of the maximum dose; and while we are not yet ready to venture an assertion that it will ever supplant ether as a general anaesthetic, we can from our limited experience prophesy a wide field of usefulness for it, both in the field of general surgery and in the treatment of convulsive disorders and nervous conditions.

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CIRCUMCISION BOARD—ESPECIALLY FOR THE NEW-BORN.

By JOSEPH BEAR, M. D., Richmond, Va.

Frequently, in the performance of circumcisions in the new-born, one is confronted with the problem of holding the legs of the infant, so as to avoid obscuring the field of operation.

The board herein described is a modification of the one used by DeLee.

The writer has so arranged the board that it can be cenveniently folded and placed in an ordinary brief case with the other necessary instruments. Thus, it is so compact, that the operator can easily carry the entire outfit (weight 4¾ lbs.) either to hospital or home. The board is 21 inches long and 6 inches wide. In the middle are placed two small hinges, thus affording an even folding. It is covered with two layers of protective material, one, next to the board, a white felt, water-proof covering and on top, white rubberized sheeting, making the process of washing comparatively easy if same becomes necessary. The surface on which the baby lies is perfectly smooth; on the reverse side small tacks are seen holding the material in place. At the foot portion, beginning just where the hips are placed, the board assumes a V-shaped appearance, each

section of the letter corresponding to each leg of the infant.

Herein lies the important step in aiding the operator by keeping the legs apart and having the field of operation satisfactorily exposed, thus facilitating matters.

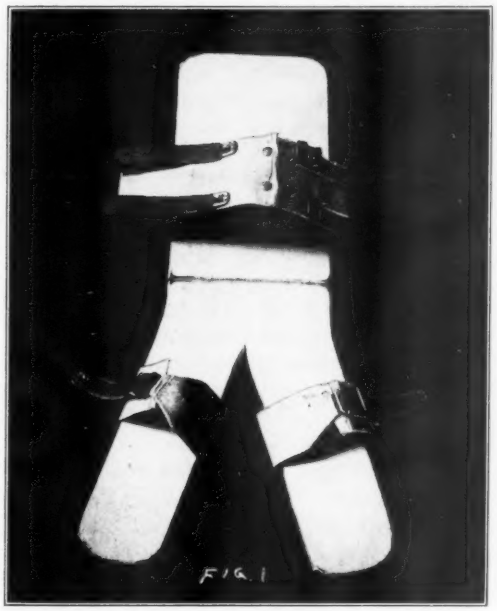

Fig. 1.—Board ready for use.

At the head of the board a small towel or napkin is placed to serve as a pillow. At the divergent section another towel is placed so as to protect it from soiling and, if extreme care is exercised, the board will remain clean throughout the operation.

There are three straps (webbing) and attached to them are buckles. One strap is placed so as to buckle itself over the chest and the other two fasten over the knees, thus holding the little patient comfortably to the board-table. In the center of the upper and larger strap are placed two rows of clasps which can be easily adjusted and serve only as an additional means of re-enforcement. The circumcision can be done without any assistance.

If any form of "oral anesthetic" is to be used, one can easily employ the following: a nurse holding a nipple and a bottle in baby's mouth (using a 6 per cent sugar solution.)

The additional articles carried in the bag are as follows: Bard-Parker knife, mosquito hemostat; small and large scissors; circumcision clamp; circumcision suture (catgut); Ky lubricating jelly; 1 inch gauze bandage and bottle containing equal parts of adrenalin chloride (1-1000) and distilled water.

Fig. 2.—Patient ready for circumcision.

Fig. 3.—Board folded and partially placed in brief case.

In the average case the writer only uses knife, circumcision clamp and bandage. The other articles are carried as accessories in the event they become necessary.

The subsequent daily dressings, can likewise be done on this board. It being so handy and convenient, same can be placed on any table, in home or hospital, and it is my opinion that this simple device can be safely utilized by the general surgeon in other conditions such as pyloric stenosis, intussusception and congenital hydrocele.

301 *East Frankin Street.*

BERIBERI IN VIRGINIA WITH REPORT OF A CASE.*

By OSCAR SWINEFORD, JR., M. D., University, Va.

Only three references to the occurrence of this disease in Virginia have been found. Holcomb[1] reported an outbreak on a Brazilian warship in Hampton Roads during the Jamestown Exposition. The victims were treated in the United States Naval Hospital in Norfolk. During the World War a German vessel, "The Eitel Wilhelm," came into Norfolk with a number of cases on board.[2] The death of an army officer, whose first symptoms of beriberi had appeared while in France, was reported in Richmond in 1921.[3]

Outbreaks in the United States occurring prior to 1910 are mentioned in the United States Public Health reports of that year.

In the United States Registration Area, the Mortality Statistics of the United States Department of Commerce report only 149 deaths from beriberi between the years 1910 and 1926. The annual number of deaths varies from five to seventeen. It is interesting to note that 64, or 43 per cent of the total number of deaths, were reported from California, and 26, or 17 per cent, from the State of Washington. It is probable that the high figures in these states may be explained by their large Oriental population.

Of our nearby states, North Carolina reported only one death, and South Carolina three between 1916 and 1926. Tennessee reported two between 1917 and 1926.

Scott and Hermann[4] have recently made an interesting and detailed report of the disease as it occurs in Louisiana.

Contrasted with the relative infrequency in the United States is an extract from the Mortality Statistics of a recent year in Japan which reports 71.3 deaths from cancer and 34.2 beriberi deaths per 100,000 population.

Before presenting the case, which is the real reason for this report, it might be well to recall very briefly the outstanding features of the disease. Excellent detailed information, which would be superfluous here, may be had in the works of McCollum[5], Vedder,[6] Stitt,[7] McCarrison,[8] Findlay,[9] Scott and Herrmann,[4] Riddell and Smith,[10] Hepburn,[11] Musgrave and Crowell,[12] and many others.

THE DISEASE.

Beriberi is an old but newly classified deficiency disease which is characterized by polyneuritis, circulatory insufficiency and gastrointestinal disturbances. The efforts of Eijkman, Fraser and Stanton, and Funk to identify the curative substance contained in rice polishings gave rise to the term and, later, to our present conception of vitamines. Since then beriberi, pellagra, scurvy, rickets and xerophthalmia have acquired a new experimental, clinical, and public health interest.

Etiology.—The disease is primarily due to a deficiency, partial or complete, of vitamine B. Diets deficient in vitamine B are usually monotonous and consist largely of carbohydrates, with or without a large proportion of fat. They are usually inadequate in protein and markedly lacking in fruits, fresh vegetables, milk, eggs, whole cereals, and glandular organs. Typical diets are made up largely of polished rice, as in the Orient and the Louisiana parishes; corn meal in Brazil; salted meat, boiled cowpeas or beans, white bread and molasses, such as one finds in prisons, on ships, etc. Beriberi has recently been reported as occurring in a diabetic[13] under treatment and presumably has occurred in typhoid patients, as we propose to show.

The onset of the symptoms in cases of moderate vitamine B deficiency is thought to be precipitated by various factors, such as overexertion, poor hygiene, poor elimination, alcoholism or infections; in general, those conditions which tend to lower the so-called body resistance. Some eighteen theories have been proposed as the vital factor in the causation of this disease.

Pathology.—It is not known how nor why a deficiency in the antineuritic vitamine B produces the morbid changes found in this dis-

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ease. There are many interesting theories. The outstanding findings in brief are:

1. Atrophy of all tissues and organs except hypertrophy of the adrenal gland.

2. Myocardial degeneration with fragmentation of the muscle fibers and usually dilatation of the right heart.

3. Degenerative changes in the nervous system which are fairly typical. There is marked variability in the degree and location of the nervous lesions. In brief, the changes are characteristically in: (a) the nerve cells, particularly of the anterior horn and posterior root ganglia, which show degenerative changes of the nuclei and total or partial disappearance of Nissl's granules. (b) The peripheral nerves, which show rather marked degeneration of the myelin sheath (more pronounced towards the terminal end organs than centrally) and of a small percentage, usually, of the fibers of the axis cylinders. Any of the peripheral nerves may show these changes. It is striking that the vagus and sciatic nerves are rarely spared. (c) Changes have been reported in the sympathetic system and the various tracts of the spinal cord and occasionally in the motor nuclei in the floor of the fourth ventricle.

Symptomatology.—The clinical picture is very variable. Depending upon the degree and duration of the dietary deficiency and other factors, the onset may be abrupt or insidious and the course of the disease acute or chronic, mild or severe. The cardinal symptoms are those of gastro-intestinal and circulatory disturbances and of peripheral neuritis, either of which may be the first to appear.

The gastro-intestinal symptoms are almost always loss of appetite, gas and fullness, with pain and tenderness in the epigastrium after meals. They are presumably explained by the involvement of the vagus nerve and the atrophy of the intestinal mucosa and pancreas.

The circulatory symptoms are usually palpitation and dyspnea on exertion and slight edema of the ankles in the milder cases. Substernal oppression after meals or on slight exertion, massive edema, engorgement of the neck veins and, frequently, sudden death characterize the more serious ones. These symptoms are due, presumably, to the myocardial degeneration and the involvement of the vagus nerve.

The peripheral neuritis usually begins in the feet and legs with weakness, heaviness and fatiguability; numbness or formication, or pain and tenderness in the calves and ankles. More advanced cases will show: paralyses, particularly of the anterior tibial group with resulting toe drop and a steppage or shuffling gait; an early increase and later decrease or loss of the knee jerks and ankle jerks; hypoesthesia or anesthesia to pin prick, light touch, heat, cold, and change of position of the feet; extreme pain and tenderness of the muscles and skin. The usual spread of the signs of peripheral neuritis is from the feet and legs up the thighs to the hips, and then from the fingers and hands up the arms. Circumoral anesthesia is a queer but fairly constant finding. Atrophies and contractures occur as in any other neuritis.

The cases are classified as wet or dry, depending upon the presence or absence of edema and polyserositis. The wet cases differ from the dry only in the presence of retained fluids which may mask the atrophies and wasting so characteristic of the disease. A dry case may become wet and *vice versa.* It is believed by some that the wet cases are due to an additional unknown deficiency. In many cases the edema is purely circulatory in origin and disappears promptly with rest in bed.

Physical Signs.—The more constant physical findings are:

1. Emaciation, which may be obscured by edema and polyserositis.

2. Cardiovascular, with weak, distant heart sounds, enlargement of the heart to the right, regular pulse of low tension, blood pressure usually about 100/60. There are no constant murmurs nor accentuations of sounds. Evidence of heart failure may be present. The electrocardiogram shows evidence of myocardial damage by alterations of the T-waves and of the QRS complexes.

3. Abdominal distention, tympany and tenderness. Signs of fluid may be added.

4. Peripheral neuritis, with the motor, sensory and reflex changes mentioned above.

Laboratory.—Laboratory findings are of little help. The urine, hemoglobin, r.b.c, w.b.c., differential, stools, gastric contents, spinal fluid, blood Wassermann, blood nitrogen, sugar, calcium, phosphorus, basal metabolic rate, and electrical reaction to degeneration are not significantly altered.

Prognosis.—The prognosis is very uncertain. Relatively mild cases may suddenly die from acute circulatory collapse characterized by sub-

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sternal oppression and pain, and congestive failure. The majority of cases, if not of too long standing, will recover promptly upon the institution of a proper diet and routine attention to the peripheral neuritis. Long standing cases with extensive degeneration of the nerves and myocardium may not recover completely. Relapses during the course of an apparently satisfactory convalescence are not uncommon in spite of an adequate supply of vitamine B.[17] Regeneration of degenerated peripheral nerves takes place slowly regardless of the cause. The paralyses and sensory disturbances, however, may be functional and not due to degeneration of the conducting fibers. The administration of vitamine B extract will in these cases produce a miraculous return of function in a few days.

Treatment.—For the acute severe cases, rest and the prompt administration of a concentrated form of vitamine B are essential. A potent source of vitamine B is conveniently found in brewer's yeast. The diet should contain, in addition to the yeast, fresh milk, eggs, whole cereals which have not been subjected to decorticating milling nor to high temperatures under pressure, fruits, vegetables, especially beans, tomatoes, cabbage and potatoes. This diet will be adequate for the prevention and for the cure of the disease.

In circulatory collapse, the prompt and continued administration of the equivalent of about one ounce of dried yeast daily will be of more value than the usual circulatory stimulants, such as digitalis, caffein, adrenalin, and ouabain, which, however, should be administered. Venesection has been reported as a life-saving measure.

In resistant cases, splinting the affected members while acutely painful will lessen the tendency to contracture. After convalescence is established, massage, heat and light exercise will probably hasten the return of function.

Differential Diagnosis.—The differential diagnosis should not be difficult. The peripheral neuritis may be indistinguishable from that of alcohol, arsenic, lead and other intoxications. But none of these are associated with the marked gastro-intestinal and circulatory manifestations which are so characteristic of beriberi. Edema and polyserositis from the nephritides, congestive failure, cirrhosis, mechanical and inflammatory causes are not accompanied by peripheral neuritis. Trichiniasis must be excluded. Tabes dorsalis, pernicious anemia and amyotrophic lateral sclerosis have definite well known diagnostic criteria.

Infantile beriberi, ship beriberi, prison edema, epidemic dropsy and maladie des jambes are so closely related that differentiation is not practicable. Many will dispute, however, the identity of epidemic dropsy with beriberi.

The Case.

History.—Miss M. J., 47, housewife and seamstress, of Pulaski, Va., Hospital No. 74938, was admitted to the University Hospital, April 20, 1929, complaining of stomach trouble of thirty years' duration.

Family History: Not important.

Past History: The usual childhood diseases. Measles was followed by a cough which lasted for one year. She had been healthy and strong with these exceptions until the present illness.

Present Illness: Began thirty years ago immediately following a severe attack of typhoid which, with a relapse, lasted three months. At no time since then has she been entirely free from indigestion. This is characterized by epigastric fullness and gas after meals, with consequent distention, abdominal pain, and tenderness. For many years she obtained considerable relief from soda which helped her to belch up much gas. These attacks have come on almost every day after almost every meal. They are worse in summer.

In the attempt to avoid these pains, she gradually reduced her diet to toast, soups, an occasional egg, refined corn meal, oatmeal, and an occasional helping of fish or chicken. She practically eliminated fruits, fresh milk, meats, peas, beans, potatoes and other vegetables from her diet. She was usually slightly hungry, but was afraid to eat because of the inevitable gas and pain after meals. There were only occasional attacks of nausea and vomiting. Her elimination was fair.

For the first ten years of her illness there were no other significant symptoms. During the next ten years she noticed frequent periods of languor and undue fatiguability, with an occasional normal day. She had several attacks of syncope during the last third of this decade. These have not recurred.

For the past ten years, pains in the back of the neck, palpitation on exertion or from gas

after meals, and occasional slight dyspnea have been added to the above symptoms. The palpitation was troublesome enough to require medical attention ten years ago.

For the past five years there have been periods of varying length in which there was slight tenderness in the calves and thighs together with discomfort in the ankles while walking.

For the past three years there have been frequent periods during which the legs felt heavy and the muscles of the legs felt sore and stiff. This tendency was more marked in the summer.

Five months before admission there was a particularly troublesome period with her stomach which caused a still greater reduction in her diet, so much so that her physician told her that she was in danger of starving to death.

About three and one-half months before admission she noticed a rapidly increasing weakness and fatiguability associated with very troublesome palpitation and dyspnea. These symptoms were so marked that crossing her room brought on a state of exhaustion which required a prolonged rest before normal breathing and relief from fatigue were obtained. During this period she noticed that exertion and, at times, the gas after meals frequently produced a feeling of severe substernal oppression and pain, which radiated down the left arm, was accompanied by a sense of impending dissolution, and was relieved by rest and sometimes by belching. She very soon noticed that her legs swelled markedly during the day, the edema reaching well above the knee, subsiding more or less completely during the night.

During this period of three and one-half months she noticed that her feet became more and more painful, the pain apparently centering in the bones of the ankles and shins. The gait became shuffling in character. Her calves and thighs became exquisitely tender. She could no longer maintain an erect position without holding to something. Her feet began to tingle and burn, at times feeling cold. There was a frequent sensation as of insects crawling on her feet and legs. Soon her fingers, wrists and left arm became weak, somewhat painful, tingly, and subjectively cold and swollen. She could no longer use her fingers for the performance of any skilled act.

She continued to have the gas, fullness, tenderness and pain after meals. By this time soda had ceased to produce any relief.

Seven weeks before admission she became bedridden. The edema subsided rather promptly but the discomfort in the abdomen and extremities continued. The legs were partially flexed in an effort to lessen the pain. There were occasional muscular twitchings in the left leg. There was a loss of position sense of the feet and legs in bed.

On admission she weighed 71 pounds. Eighteen months before her weight had been about 110 pounds. There was no history of alcoholism nor exposure to metals.

With the exception of moderate dysmenorrhea, frequent headaches, and nocturia 1-2, there were not other significant symptoms referable to the eyes, ears, nose, throat, genito-urinary, cardio-respiratory, gastro-intestinal or neuro-muscular systems.

Physical Examination.—Physical examination showed a markedly emaciated white spinster of forty-seven years with a drawn expression, apparently in pain.

The eyes, ears, nose, throat, and neck were essentially normal.

The heart was not enlarged, but the sounds were distant and of poor quality, while the rate was regular at 78. There were no abnormal accentuations of sounds nor were there any murmurs. The patient could not be exercised. The blood pressure was 136/88.

The abdomen showed rather marked distention and tympany, with generalized tenderness on deep pressure and superficially. There was, at first, a questionable mass about the size of an egg in the region of the pylorus. This disappeared by the next day and did not reappear. There was no visible peristalsis and no organs were palpable. There was bilateral costo-vertebral tenderness, which was both deep and superficial and extended over the spine and down over the sacrum.

The legs were flexed at the knee and at the thigh. Efforts to straighten them were painful. All of the muscles were weak, especially the flexors of the thigh and the extensors of the knee. The flexors of the foot were almost powerless, giving a bilateral toe drop. There was exquisite tenderness of the muscles of the calves and thighs, more marked on the left than on the right. The bones of the legs and thighs and lumbar spine were painful upon light tapping. There was a marked lack of apprecia-

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tion of tactile, thermal and pain stimuli in both legs. This was more marked below the knee than above and more marked on the left than on the right. There was a complete loss of position sense of the great toes.

The arms were weak and tender on deep pressure. The other sensory changes were not noticeable.

The biceps, triceps, radial and ulnar reflexes were normal. The abdominals were slightly increased. The knee jerks were increased, more markedly on the left than on the right. The ankle jerks were slightly increased on both sides. Both anterior tibial reflexes were present. The tendon reflex for the other toes was absent. There was no ankle clonus and the Babinski was negative.

The patient could not stand unsupported. Weight-bearing produced pain in both legs. This was more marked on the left and radiated up into the back.

The most striking neurological finding was a zone of circumoral hyperesthesia measuring 2 cm. in width. Several other patients were tested as controls.

Laboratory.—The urine on six examinations showed specific gravity variation 1.008 to 1.024, s.p.t. of albumin twice, no sugar, no acetone, an occasional hyaline cast four times, no erythrocytes nor pus in a catheterized specimen.

The blood showed: erythrocytes 3,700,000—3,900,000, leucocytes 5,600, p.m.n. 64 per cent, lymphocytes 36. The morphology of erythrocytes and platelets was normal, color-index .97, reticulated erythrocytes .1 per cent.

Gastric analysis showed 130 c.c. with 20° free HCl, 39° total acidity and a strongly positive benzidine test for blood. The following day only 15 c.c. could be recovered. This showed 50° free HCl, 68° total acidity, and a negative benzidine.

The spinal fluid showed a pressure of 100 mm., no globulin, normal sugar, 5 cells and a negative Wassermann.

The stools showed no mucus, no gross or occult blood, no increase in starch or fats and no parasites.

Cultures of stools for the beriberi bacillus, as described by Matsumara *et al*,[14] and one culture for the typhoid group were negative. The blood Wassermann was negative. Blood urea was 40 mg. per 100 c.c.

X-rays of the lumbar spine, gastro-intestinal tract and gall-bladder were negative. A seven-foot plate of the chest showed the diameter of the heart to be 33 per cent of the bony thorax. There was no prominence of either auricle or ventricle. The electro-cardiographic findings are grouped in Table I.

Tests for the electrical reaction to degeneration showed a normal response of all leg muscles. There was a suggestion that the response was more distinct on the right than on the left.

The temperature varied from 97° to 99.6°. The majority of readings were between 98° and 99°. The mean pulse rate was between 80 and 90.

Treatment and Progress.—Treatment consisted of belladonna, enemas, and a five-meal gastric diet at first. There was no improvement. On April 26 a high caloric diet was instituted.

May 1.—General condition somewhat improved; less abdominal discomfort; pains in the legs less acute.

May 3.—Stomach a little less troublesome; stronger but unable to walk; neurological signs persist but to less extent.

May 4.—High vitamine B diet begun together with a daily intake of 3000 calories.

May 6.—Patient up on her feet with only slight discomfort. She could not walk without support. The diet does not produce appreciable discomfort.

May 7.—Much stronger; can walk around bed by holding on to it; can rise to a standing position from chair without help of hands; slight pain in left ankle when standing.

May 12.—Slight swelling and pain in the legs returned.

May 15.—Marked return of weakness, edema, paresthesia, tenderness and pain in legs, with marked exacerbation of abdominal pain and distention after meals. This was attributed to too much walking up and down the ward. Put back to bed; enemas and belladonna resumed.

May 26.—Feels fine except slight tenderness of muscles on deep pressure. Neurological signs, i. e., anesthesia, paresthesia, toe drop, pain, etc., absent. Appetite excellent, can hardly get enough to eat.

June 6.—Feels fine. There is very slight tenderness of the muscles. Neurological signs entirely negative. Weight, 79 pounds.

June 7.—Discharged on high vitamine B diet.

The patient was readmitted on October 1, 1929, because of a relapse. She had an ex-

cellent appetite, little indigestion and few discomforts in her extremities for about two weeks after returning home. She then had a return of the indigestion, diurnal edema, and peripheral neuritis in spite of adherence to her diet of milk, eggs, whole wheat bread, unrefined corn meal, etc. Yeast had been discontinued some weeks before leaving the hospital. She continued in the relapse with exacerbations and partial remissions of her symptoms until readmitted.

Physical examination was essentially the same as before except that the sensory disturbances in the legs involved only the feet and lower two-thirds of the tibiae and there was no loss of position sense. There was a new finding, namely, slight weakness of the muscles of the right lower quarter of the face with atrophy of the left half of the tongue which deviated to the left. She had lost about one-half pound in weight.

Laboratory. — Laboratory examinations of the blood, gastric contents, stool and urine were essentially the same. Fasting blood sugar was 82, blood phosphorus 4.4, blood calcium 9.5 mg. per 100 c.c. B.M.R. was 0 per cent. Blood pressure variations were 110/80 to 98/78. Negative reactions to degeneration were again obtained. Stools were still negative for beriberi bacilli.

X-rays of the G. U. tract were negative. X-rays of the teeth showed a devitalized upper left incisor and moderate pyorrhea of the remaining lower teeth, with a small metallic body adjacent to the lower right bicuspid, removal of which gave prompt relief from her headaches. Another gastro-intestinal X-ray was normal.

Progress and Treatment. —

October 3.—Condition unchanged.

October 4.—Brewer's yeast concentrate, drams two t.i.d. and special anemia diet.

October 5.—Sensory discrimination much improved, especially on left.

October 9.—Tactile sensation practically normal except over inner aspect of both feet. Dyspepsia better.

October 11.—Pain in legs, numbness and tingling in left arm, stiffness and pain in neck muscles on left, and dyspepsia, all worse.

October 21.—Has varied from day to day subjectively and, to a lesser extent, objectively. Compared with October 1st, neurologically, much improved. Dyspepsia somewhat better.

TABLE I

ELECTROCARDIOGRAPHIC FINDINGS

Date	Rhythm	Rate	P. R. Interval	Axis Deviation	T-Waves			P-Waves Lead II	QRS Complexes			Clinical Condition
					T_I	T_{II}	T_{III}		Potential	R_I	R_{II}	
5-2-29	Normal	100	.18 sec.	None	Flat	Flat	Flat	+2 mm.	Low	+2 mm.	+4 mm.	Unable to walk.
5-10-29	Normal	90	.19 sec.	None	Flat	*Flat	Flat	+2 mm.	Slight increase	+2 mm.	+9 mm.	Much improved.
6-3-29	Normal	75	.18 sec.	None	+1 mm.	*+3 mm.	+1 mm.	+2 mm.	No change	+2 mm.	+9 mm.	Convalescence well established.
10-3-29	Normal	100	.18 sec.	None	+⅓ mm.	*Flat	−⅓ mm.	+2 mm.	Low	+2 mm.	+6 mm.	Ninth week of relapse.
10-16-29	Normal	80	.19 sec.	None	+1 mm.	+1 mm.	Flat	+2 mm.	Low	+2 mm.	+4 mm.	Improvement moderate.
10-23-29	Normal	85	.18 sec.	None	+⅓ mm.	Flat	Flat	+2 mm.	Slight increase	+4 mm.	+6 mm.	Neurologically better. G. I. symptoms persist.
11-4-29	Normal	90	.17 sec.	None	+⅓ mm.	+1⅓mm.	+⅓ mm.	+2 mm.	Slight increase	+4 mm.	+7 mm.	Partial relapse.
11-10-29	Normal	95	.19 sec.	None	+1 mm.	+1 mm.	Flat	+2⅓ mm.	Slight increase	+4 mm.	+9 mm.	Little change. Convalescence not well established.

*Attention is called to the elevation of the T-Waves, especially T_{II}, after convalescence is established, and to the T-Wave depression before convalescence and during a relapse.

October 27.—Better than at any time since relapse.

November 3.—Exacerbation of dyspepsia, paresthesias, and hypoesthesia of feet.

November 8.—Upper lip continues hyperesthetic; lower lip normal. Right facial weakness with left hemiatrophy and deviation of tongue persist. Flexors of the left thigh weaker than right. Light touch, pain and temperature discrimination diminished in both feet and ankles, more marked on left.

November 10. — Discharged. Improvement not striking. To continue yeast, rest and balanced diet at home. Prognosis for cure apparently remote.

Discussion and Conclusions.

1. A case of chronic beriberi is presented, together with notes on the incidence in Virginia and the mortality statistics in the United States and Japan.

2. The onset of the presenting symptoms during a prolonged illness with typhoid fever is emphasized as being unique in the literature. It is surprising that many such cases are not on record when one considers the markedly deficient diet until recently in vogue in the treatment of typhoid. Cowgill[15] sensed the likelihood of its occurrence when he said, "It is quite possible that certain types of convalescents owe their anorexia to too prolonged subsistence on a diet low in antineuritic vitamine."

3. The small QRS complexes and flattened T-waves of the electrocardiograms are consistent with the findings of Scott and Herrmann.[4] Aalsmeer and Wenckebach[16] found nothing characteristic in the electrocardiograms. The striking improvement in the T_{1}-waves (Table I) paralleling the clinical improvement in the month from May 3rd to June 2nd is most interesting, and may, if confirmed by others, prove useful.

The further lowering of the T-waves during the relapse and their failure to increase appreciably during the observed period of little clinical improvement (October 1st to November 10th) suggests a prognostic use of the electrocardiogram.

The absence of enlargement of the heart, even with the signs of slight heart failure, is in accord with the reports of Hepburn[11] and of Scott and Herrmann.[4]

4. Relapses during satisfactory convalescence while under treatment were called beriberic residual paralysis by Wright.[17]

5. The presence of knee jerks and the rapid sensory improvement following the administration of vitamine B in this case find precedence in the report of Hepburn,[11] who noted the presence of knee jerks in patients whose legs and lower abdomen were anesthetic to pin prick and, further, the total disappearance of anesthesia in five days after the administration of high vitamine B diets.

6. Circumoral hyperesthesia in this case is analogous to the typical circumoral hypoesthesia.

7. Repeated efforts to isolate the beriberi bacillus of Matsumara[14] were unsuccessful. There were numerous B. coli communior which, however, failed to agglutinate with the patient's serum.

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CONSIDERATIONS IN THE PREVENTION OF THE RECURRENCE OF INGUINAL HERNIAS.

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The attention of modern surgeons is focused upon obtaining successful herniorrhaphies in much the same manner as it was hundreds of years ago. It is a far cry, however, from the inevitable castration, which was perhaps a lesser evil associated with the hernia operation of a distant day to the attempts to pre-

vent the small percentage of recurrences which occur at this time. The literature is voluminous and it is to be noted that the greater part of it deals with the type of operation, suture material and causes of failure. This is probably as it should be, but still operative and anatomical problems relative to inguinal hernias differ widely and are solved quite differently. The considerations which follow have been very useful to me, yet they are probably only variations of modern surgical thought and experience. For convenience, this discussion will start with the sac and conclude with the advocation of local anaesthesia as an aid in the prevention of recurrence.

Inguinal hernias are usually defined as direct or indirect inguinal hernias. The definitions are intended to convey the manner of protrusion and the position of the hernia. Thus an indirect hernia makes its exit through the internal abdominal ring and passes down the inguinal canal. The peritoneum composing its sac is believed to be congenital in origin and the result of incomplete closure of the tunica vaginalis in the foetus, after the descent of the testes. Only a small dimple may remain at the internal ring or the tunica vaginalis may remain patent down to and completely over the testicle, depending upon the success attending its closure in the foetus. Whatever its size, the important point to be noted is that the conditions favorable to the production of a hernia are present. If the tunica remains completely open, then the hernia will be present at delivery, but if only a dimple remains the constant variations of pressure in the abdomen will gradually increase its size and, as the planes of cleavage of the inguinal canal offer very little resistance, there is little obstruction to the gradual dissection and enlargement of the sac down the canal. It is commonly accepted that the sac or potential sac of an indirect hernia is present first, and is the cause rather than the result of the muscle and fascia defects associated with it.

A direct inguinal hernia is defined as a hernia whose sac protrudes directly through the abdominal wall medial to the inferior epigastric artery. The origin of the sac of a direct hernia and the bearing it has upon recurrences have been noticeably neglected. The muscular weaknesses and fascial defects associated with direct hernias are commonly thought to be the cause, rather than the result of this abdominal wall defect. This statement, however, invites an investigation of the deployment of the peritoneum of this area.

The Peritoneum of the Inguinal Region

When performing a supra-pubic cystostomy for any purpose it is necessary to dissect the peritoneum off of, what may be termed for practical purposes, the ventral surface of the bladder, when it is distended. The reflection of the peritoneum from the ventral wall of the abdomen over the pelvic viscera can be easily demonstrated during this operation. The amount of peritoneum that must be removed from the bladder is extremely variable. In some cases the peritoneum extends down to and covers the retropubic pad when the bladder is distended, while in others very little has to be pushed back in order to expose the bladder. Therefore, in those cases in which the reflection is very low when the bladder is distended, there must be considerable redundant peritoneum when the bladder is empty. Let us transfer the scene just a few centimetres laterally to the ventral edge of the paravesical fossa just where the peritoneum makes its reflection. If a similar situation should exist here, then there would be a certain amount of redundant peritoneum just proximal to the lacunar ligament and immediately beneath the conjoined tendon. This redundant peritoneum impresses me as being the potential sac of a direct hernia. When it is present, increased intra-abdominal pressure must distend and fill it out. The path of least resistance which it can follow is lateral till it reaches the inguinal canal, where it either emerges from the conjoined tendon, forcing that structure medially or descends in the canal.

Of course, conditions favorable for its dissection must be present. If the origin of the transversalis and internal oblique muscles on the inguinal ligament is low, then the arch of the conjoined tendon is short, the tendon itself is better developed and a direct hernia is less likely to occur. From this reasoning, the conclusion is inevitable that the sac of a direct hernia is a product of foetal development rather than the result of muscular weakness. Both factors must be present in direct and indirect hernias, but the former, it seems, predominates.

This fact may be useful in preventing recurrences. It is notorious that the majority of recurrences of both direct and indirect ingui-

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nal hernias exist as direct hernias. Attention to the redundancy of the peritoneum in this area may help eliminate a factor in failures. In indirect inguinal hernias this reflection can be felt easily through the internal ring. If it is too low, then the inguinal canal can be opened more widely, the redundant peritoneum removed and the reflection lifted to a higher level. In direct hernias, the reflection itself is the object of surgical attack and, after as much of it as possible has been removed, it may be elevated by suturing the neck of the sac as high up as possible under the transversalis and internal oblique muscles.

Removal of this redundant peritoneum at the reflection and its suture high up under the muscles have certain advantages other than the protection of the sac itself. First, it will stretch the peritoneum so as to eliminate any small sacculations which may be potential sacs; second, it will remove the peritoneum from the common side of recurrence, which, in the interim required for the intra-abdominal pressure to stretch the peritoneum again, will have a better opportunity to heal more strongly; and, third, it will apply the peritoneum more smoothly and closely to its overlying muscles. The latter is of some importance because the peritoneum has less chance of deflecting or penetrating muscles or fascia if it is evenly and closely applied to it than if it is loosely attached by areolar tissue.

Three fundamental principles are involved in all of the commonly accepted herniorrhaphies in use at present, namely, high and firm ligation of the sac, successful closure of the defect in the abdominal wall, and the narrowing of the external ring. To these I would suggest a corollary: that attention be paid to the peritoneum of the floor of the inguinal canal, in order that its reflection be removed from the common site of recurrence, and the pressure upon the reconstructed wall be uniformly distributed.

Closure of the Defect

It is reasonable to assume that any of the operations in use at present would be invariably successful if the defect in the abdominal wall could be effectively and permanently closed. Russell[1] and others have advised against closing this defect altogether, presuming that the removal of the cause is sufficient to constitute a cure. This is illogical, because the results of a cause often require correction, especially if they are mechanical in nature. The argument that in the usual operation, the complete opening of the canal invites recurrence, does not have sufficient weight. Just as unreasonable is the method of Andrews[2] in which the transversalis facia is used as the sole support of the defective abdominal wall in those cases in which there is no atrophy of the muscles of the conjoined tendon. There is no advantage in using a variable and weak structure, often rudimentary in this area and difficult to find, when more bulky and adequate structures are at hand, which can be used without difficulty or harmful effects.

However, it is commonly accepted that those procedures in which the abdominal defect is to be obstructed by muscle and fascia are surgically sound. There is no reason why this area should be left unprotected when the whole abdominal wall is similarly constructed. Many operations have been devised to accomplish this, practically all of which unite the inguinal ligament, the internal oblique and transversalis muscles and the fascia of the external oblique. A certain amount of failures continue to occur and, when not the product of faulty technique or judgment, they have been attributed to the failure of these structures to unite, especially the union of the muscles to the inguinal ligament. In order to facilitate the union of these structures, living and dead fascial grafts have displaced the use of silk, catgut and kangaroo tendon and the results obtained so far indicate that this type of suture may prove superior to catgut or the others.

In a recent publication,[3] I indicated several mechanical factors that may discourage the union of these structures, and suggested fascia to fascia apposition as a means of obtaining stronger and better closures, thus eliminating many of the difficulties associated with the use of fascial grafts. The procedure described uses catgut as suture material, but differs from other methods of fascia to fascia apposition, notably imbrogation, in that the medial portion of the aponeuroses of the external oblique is sutured flat upon the internal oblique and transversalis muscles immediately beneath it and then these two structures are joined to

1. Russell, R. H.: Inguinal Hernia and Operative Procedure. S., 9 and 10, 1929, xl, 605-609.

2. Andrews, Edmund: Simplified Herniotomy. **Surgical Clinics of North America**, 5, 4; Aug., 1925.

3. Jacobson, Philip: Fascia to Fascia Apposition in Herniorraphies. **Virginia Med. Mo.**, 56, 7; Oct., 1929.

the inguinal ligament as if they were one, apposing the medial surface of the inguinal ligament to the medial portion of the aponeuroses of the external oblique. Thus, wide areas of living fascia are brought together instead of edges, and since all sutures are placed in heavy fibrous tissue the tendency of the sutures to cut through is lessened, and the apposition can be maintained until strong fibrous union of the fascias is attained. One of the advantages claimed for this procedure is that the tension formerly carried by the muscular structures alone is by this means distributed between the muscles and the aponeuroses, and the latter might even carry the greater burden. The suggestion was made that still better results might be obtained if this tension could be reduced or eliminated before the patient left the table.

Reduction of Suture-Line Tension

Further reflection upon this point convinces me that not only is this relief of tension at the suture-line desirable, but also necessary, in order to avoid certain anatomical incompatibilities after the herniorrhaphy is completed. It is obvious that if the structures to be joined to the inguinal ligament can be maintained there without tension, fibrosis and healing will proceed at a greater speed, resulting in a firmer and more complete union. The reduction of this tension has been mentioned by Gersch,[4] Keynes,[5] and others. It can be obtained by dissecting the aponeuroses of the external oblique from the aponeuroses of the internal oblique where these two sheets of fascia are joined over the rectus muscle, and making a longitudinal incision in the aponeuroses of the internal oblique about three or four inches long. The transversalis and internal oblique muscles can then be sutured to the inguinal ligament without tension. However, the question whether under even these favorable conditions the muscles will unite with the fascia, is still under dispute. An objection to this procedure is that it does not utilize adequately the strongest and most useful structure for defending the hernia—the aponeuroses of the external oblique. If this structure is to serve a useful purpose, the thicker medial part must be sutured to the inguinal ligament and, when this is accomplished, a certain amount of tension will be present. The amount of this tension is the sum of three forces: first, the intra-abdominal pressure; second, the tension required to pull it over and anchor it to the inguinal ligament; and, third, the sudden strains produced by the contraction of the rectus muscle. All three of these strains comprise too great a burden, and they are likely to remain because certain anatomical facts cannot be altered.

These are two in number: first, the distance between the inguinal ligaments cannot be reduced; and, second, the fascia across this area cannot be lengthened. If the area under discussion be considered as a trapezoid, the divergent sides are formed by the inguinal ligaments and the roof and base by parallel lines between the anterior superior spines and the pubic spines. All these structures are fixed and, while the inguinal ligament can be drawn medially to some extent, its tendency is to return to its former position. The area of this trapezoid is covered by a layer of fascia which is tendonous in nature. This is also fixed and tends to remain one size. Nature has provided for the symmetry and maintenance of the body mechanics in this manner. Tendons and supporting planes of fascia cannot be stretched; otherwise, the power of locomotion and the ability to retain the body form could not exist. The fascias between the two inguinal ligaments cannot be stretched and, in order to lengthen them, because obviously the distance between the bony structures cannot be reduced, it is necessary to cut them just as any other tendon or fascia must be incised in order to lengthen it. Therefore, if a defect exists in this area and its closure is desired, then the fascia must be cut and a second defect produced which will permit closure of the first.

The logical location to do this is near the medial border of the rectus sheath and, when all the fascias forming the sheath are opened by a longitudinal incision extending proximally about four inches from the pubis, the inguinal defect can be closed without tension and with the added advantages that the strains and forces of the pregnable area will be equitably distributed and that a point of elasticity will be provided to take care of any sudden strain.

The objection that this procedure will weak-

4. Gersch, Leo: A Simple Plastic Method of Herniotomy in Muscular Atrophy of the Inguinal Canal. **Zentrallblatt fur Chirurgie**, 53, Sept., 1926.

5. Keynes, Geoffrey: The Modern Treatment of Hernia. **British Medical Journal**, 3447, Jan. 29, 1927.

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en the rectus sheath and muscle is hardly tenable. The muscle exerts its force in the direction of the incision and, as none of its attachments to the sheath have been interrupted and the muscle itself has not been injured, certainly its usefulness will not be impaired. As for the sheath, its ability to withstand sagittal strains remains unaltered; a slight weakness to anterior pressure will be created, but this will be limited by the shortness of the incision, the strength of its angles and the presence of the rectus muscle, and for practically the same reasons its lateral strength will remain unimpaired. Moreover, a certain amount of fascial regeneration will take place during the convalescence, fixing the opening in the sheath and strengthening the angles of this incision. Another protection is the transversalis fascia behind the rectus, intimately associated with the peritoneum. While this fascia is absent or underdeveloped along the inguinal canal, it is practically always a strong layer behind the rectus, where its usefulness has not been affected.

It would be impertinent at this time to state that incision through all the ventral fascias of the rectus sheath in the manner described should be adopted as a routine procedure in inguinal herniorrhaphies. Further experimental and clinical work is necessary, but the cases done so far have demonstrated the value of this maneuver.

Disposition of the Cord

The disposition of the cord is still subject to differences of opinion. Some operators always transplant the cord; others never do. The accepted practice seems to be that the cord should be transplanted if the hernia is direct, and that when an indirect hernia is present, narrowing of the external ring is more desirable. This agrees with the measures to be taken to prevent recurrence, according to the position of the reflection of the peritoneum from the ventral wall of the abdomen to the pelvic viscera. When a direct hernia is present, the reflection is low and the wall of fascia in front of it must be made complete. If the hernia is indirect and the reflection is also low, then transplantation is indicated because the same wall is required to prevent recurrence. In indirect hernia with a high reflection, transplantation is not necessary.

Closure of the External Ring

In those cases in which the cord is not transplanted, successful narrowing of the external ring must be obtained. Accordingly, an aperture is left through which the spermatic cord can make its exit without constriction, presuming that this is the avenue of exit of a recurrence. If, however, one will run his finger beneath this aperture which is to be the new external ring, he will often find that despite the smallness of the opening, the finger enters the scrotum quite easily. The finger is following the path of a recurrence; it passes beneath the aperture, not through it, and enters the scrotum. This is due to the fact that no matter how small the external ring may be made, the distance that separated the insertions of the two pillars of the external ring on the pubic bone remains the same and the ultimate effect of thus closing the external ring is no more than to draw the fascia tight between these two insertions; this leaves beneath it the wide gap between the fascia and the bottom of the groove of the pubic bone, in the manner of a cord subtending the arc of a circle. In large hernias and those of long standing, the insertions of the two pillars are far apart and between them is the groove of the pubic bone which under ordinary circumstances is large enough to accommodate the spermatic cord alone. It is obvious that when a large hernia sac is present in addition, the groove must be wider and deeper and it is through this that the finger passes quite easily.

Therefore, in order successfully to close the external ring, not only must the aperture be made as small as possible, but the insertions of the two pillars must be brought closer together. This can be done by suturing the aponeurosis on each side of the cord to the pubic bone, in this groove. Sometimes it will be necessary to suture the aponeurosis on each side of the cord to the bone, but more often one side, usually the medial, will be sufficient. The test of its effectiveness can be easily made by passing the finger alongside the cord under the fascia towards the scrotum, and in doing this the finger is duplicating a hernia sac in its effort to reach the scrotum.

Closure of the Skin

Closure of the skin will hardly have any effect upon the herniorrhaphy beneath except in case of infection. The wound should be dry, and primary healing is essential. Some-

times a quantity of liquid fat is present, the result of manipulation. This may interfere with union, and may be removed by pouring a little ether in the wound and quickly sponging it out.

Local Anesthesia

The use of local anesthesia in herniorrhaphies has been reserved for those cases which would suffer from the systemic effects of a general anesthetic. There are certain advantages to be derived from the use of local anesthesia in herniorrhaphies in all cases. Tinker and Sutton[6] have enumerated several of these which I wish to emphasize.

In desperate and difficult cases time must be considered, but where local anesthesia is used a long period on the table will have no effect on the result. Bleeding will be reduced, allowing a clearer field to work in, thus partially compensating for the extra time required by this type of anesthesia. However, its outstanding contribution is that it removes completely the most prominent post-operative danger incidental to any plastic procedure, that of breaking or cutting through of the sutures. The tremendous strains upon the suture lines imposed by post-anesthetic restlessness, vomiting, wretching and coughing are entirely avoided, certainly a desirable feature after all the effort that has been expended.

Comment

These considerations are presented more as opinions than as facts. They will have accomplished their purpose if they renew the discussion of the means of obtaining successful herniorrhaphies, using structures already present and with convenient suture material. There is no quarrel with the use of dead or living fascial grafts except the difficulties entailed by the use of these materials. It may be that time will bring a solution to these difficulties and facilitate their use.

The operation I have previously recommended seems a reasonable and logical procedure. It is simple, requires no special materials or unusual technical ability, and so far has been uniformly successful.

At present, the sac is the subject only of extirpation. In large hernias, which are most likely to recur, the sac is quite large and represents an extensive area of peritoneum. Perhaps the future may find some use for this sheet of material. The peritoneum when injured is very apt to proliferate fibrous tissue from its subserous layer, a phenomenon which is familiar as adhesions. Peritoneum differs from fascia, however, in that it stretches and accommodates itself to its surrounding tissues, but removal from its normal environment may alter its growth so as to serve a useful purpose in the abdominal wall from which it has been removed. I have used the sac along with catgut on two occasions.

Conclusions

1. The sacs of both indirect and direct hernias are the results of foetal development, and therefore precede the muscle and fascia defects produced by them.

2. The reflection of the peritoneum from the abdominal wall over the pelvic viscera is variable in position and, when very low, is often the potential sac of a direct hernia or a recurrence.

3. Longitudinal incision through all the anterior layers of the rectus sheath will relieve the tension at the suture line along the inguinal ligament, provide a point of elasticity to take up sudden strains, and will not weaken the abdominal wall.

4. Successful narrowing of the external ring depends upon the distance separating the insertions of its pillars in the pubic bone.

5. The disposition of the cord depends upon the position of the reflection of the peritoneum.

6. Local anesthesia is the anesthesia of choice in inguinal herniorrhaphies.

111 *Monroe Street.*

6. Tinker, M. B., and Sutton, H. B.: Operation in Difficult Hernias with Special Reference to Fascial Transplant and Local Anesthesia. New York State Journal of Medicine, 24:17, Aug., 1924.

AN UNDESCRIBED GENITAL LESION.*

By T. LATANE DRISCOLL, M. D., Richmond, Va.

I have stated before this body on a previous occasion that I believe our classifications of chancroids is essentially incorrect.

I wish to submit, with apologies, that it is very rare in my experience to find a lesion that, with careful study, may not fall into half dozen or more classifications that are certainly not chancroids as generally understood.

The lesion I am particularly interested in apparently falls in none of the classifications I am acquainted with. The lesion varies in size from a dime to half dollar, occurring

*Read by title at the sixtieth annual meeting of the Medical Society of Virginia, in Charlottesville, October 22-24, 1929.

most frequently in the preputial sulcus. If venereal in origin, the period of incubation varies from three days to several weeks. They are painful for a few days, after which they are wholly painless, or only a very slight sense of discomfort. They may persist for months, and even several years. There is a bilateral lymphadenitis with no suppuration, and only moderately enlarged glands. There is no marked inflammatory area surrounding the lesion, and, consequently, not the edema of foreskin often found. There is no suppuration within the lesion, induration is slight, and there is almost no destruction of tissue, and, as a result, the sore is about on the skin level; yet I have seen exceptions to this general rule in a super-imposed streptococcic infection.

The lesion, when excised, is surrounded by a slightly elevated tough wall; the line of demarcation is rather conspicuous. The tissue seems uniformly firm and dense.

Microscopic tissue section shows an ulcer bordered laterally by a stratified squamous epithelial surface with very little superficial keratinization, definitely limited internally by an intact basement membrane. A fibrous connective tissue underlies the ulcer and epithelium, and extends to the margin of excision. The base of the ulcer is composed of necrotic debris and an exudate in which polynuclear leucocytes predominate. The underlying connective tissue, in which a few smooth muscle cells occur, is extensively infiltrated with leucocytes and mononuclear wandering cells. About the ulcer the infiltration is diffuse, and here polynuclear leucocytes predominate. Farther from the ulcer the infiltration tends to be focal in distribution.

Plasma cells predominate, with smaller numbers of macrophage wandering cells, lymphocytes and polynuclear leucocytes associated with moderate fibroblastic proliferation. The infiltration lacks the strikingly perivascular distribution seen in chancre. Treponema pallida are not seen in silver impregnated sections. There is no histological evidence of tuberculosis or of any specific process.

Interpretation: Nonspecific subacute inflammatory lesion.

Bacteriologic study shows an occasional streptococcus, staphylococcus, and colon bacillus, which in my opinion simply represents contamination, and not primary infection.

Grace Arcade Building.

Proceedings of Societies

Virginia State Board of Medical Examiners.

At the semi-annual meeting of the Board in Richmond, early in December, the following doctors were granted certificates to practice medicine in Virginia, either by examination or through reciprocity:

Dr. Carl Flory Coffman, Geer, Va.
Dr. Wendell Phillips Collette, Washington, D. C.
Dr. Alfred C. Fentress, Norfolk, Va.
Dr. Carson Lee Fifer, University, Va.
Dr. Charles Conrad Freed, Roanoke, Va.
Dr. Floyd Wesley Green, Durham, N. C.
Dr. John Tilghman Hazel, Clarendon, Va.
Dr. William Marion Hoffler, Hagerstown, Md.
Dr. Louis Aloysius Houff, Norfolk, Va.
Dr. John Anderson Jackson, Portsmouth, Va.
Dr. Dean Cicero Jones, Chilhowie, Va.
Dr. Edward Sydney Jones, Washington, D. C.
Dr. Thomas Floyd Kennan, Raphine, Va.
Dr. N. F. McNorton, Yorktown, Va.
Dr. Mansell Herbert McShann, Washington, D. C.
Dr. William Alexander Murphy, Staunton, Va.
Dr. Horatio Whitman Newell, Richmond, Va.
Dr. Clifton Frederick Nelson, Lawrenceville, Va.
Dr. David Stewart Polk, Philadelphia, Pa.
Dr. James Warren Sayre, Newport News, Va.
Dr. Willis M. Sprinkle, Marion, Va.
Dr. Robert Paul Stock, Stonega, Va.
Dr. Ashley Obre Thomas, Washington, D. C.
Dr. Martillus Hollis Todd, Lynch, Ky.
Dr. Jacob Wilkins, Philadelphia, Pa.
Dr. Lyman A. Lydic (osteopath), Dayton, Ohio.

Dates selected for the next meeting of the Board are June 17-20, inclusive, in Richmond. Dr. P. W. Boyd, Winchester, is president, and Dr. J. W. Preston, Roanoke, secretary.

The Loudoun County (Va.) Medical Society

Held its February meeting in Leesburg, with Dr. H. P. Gibson, of that place, as host. After the reading of papers, a buffet supper was served. Dr. G. F. Simpson, Purcellville, is president, and Dr. W. O. Bailey, Leesburg, secretary.

The Lee County Medical Society

Held a meeting recently, and elected Dr. J. B. Muncy, Pennington Gap, Va., as president to succeed Dr. P. D. Pence, deceased. Dr. W. J. Innes, Pennington Gap, was re-elected secretary.

All regular medical societies in the State are urged to send us reports of their meetings and names of officers to be used in this Department.

President's Message

At the suggestion of its Council, the Medical Society of Virginia has decided to send two copies of the VIRGINIA MEDICAL MONTHLY to every person who is licensed to practice medicine in the State of Virginia, whether or not that person be a member of our society. The reason for sending out these extra copies of the VIRGINIA MEDICAL MONTHLY is to acquaint those of the Medical Profession, who are not members of the Medical Society of Virginia, with the plan which this society has for improving the efficiency and standing of all practitioners of medicine in this State.

While it is only proper that a society should first consider its own members and should first give them the privilege of post-graduate education by means of clinical instruction, still the Medical Society of Virginia realizes that in order to improve the general health of the State, and the standing of the profession, it will be necessary to also consider the practitioners outside of the Society. A number of these, such as the Negro physicians, are not eligible to membership in the Medical Society of Virginia, but it is realized that they occupy an important place in preserving the health of our people. Our Department of Clinical Education, therefore, hopes to extend its clinical work so as to give facilities for clinical instruction to colored physicians, if they desire to take advantage of them.

The only return that the Medical Society of Virginia will ask is for cooperation with its program, which should benefit all practitioners in Virginia. In order to obtain this cooperation it is necessary to improve the local organizations of the profession. So it is hoped that the medical men both white and colored, will join their local organizations, which will aid them, not only in obtaining post-graduate instruction, but will increase their prestige in the community. I think I can promise cooperation with these local organizations from the Medical Society of Virginia, whether they are eligible for membership in our society or not, it, of course, being understood that the local organizations, on their part, will fall in with the general policy of the State Medical Society and the American Medical Association.

For the benefit of the doctors who are not members of the Medical Society of Virginia, I am going to take the liberty of repeating the program as recently adopted by the Department of Clinical Education of the Medical Society of Virginia, trusting that the members of the society will pardon the repetition. The Department of Clinical Education is made up of representatives from the Medical Society of Virginia, the Medical Department of the University, the Medical College of Virginia, and of the State Department of Health. Its purpose is to furnish post-graduate medical education and for that purpose to bring about cooperation and correlation of the efforts of these different organizations. It proposes to start by furnishing clinical education in the following manners:

1. To give clinical instruction, for one day, in different parts of the State so that the local doctors will not be taken from their work for any lengthy period.
2. To furnish clinics at the Annual Meeting of the Medical Society of Virginia.
3. To cooperate with the Medical Departments of the University of Virginia, and the Medical College of Virginia, in promoting the clinics which they have already very successfully conducted.
4. To cooperate with the State Health Department, and the State Department of Public Welfare in holding special clinics at various State institutions. The Health Department has already held such clinics for colored physicians at Piedmont Sanatorium, and it is hoped similar clinics may be held elsewhere.
5. To cooperate with the local medical societies in the larger cities, in holding clinics which will be open to any member of the State Medical Society, but are especially for the benefit of the doctors in the Congressional Districts in which the clinics are held.

We sincerely hope and believe that the program just outlined will be of great service to the Medical Profession in Virginia, and feel we have the right to expect full, earnest cooperation from every local medical society and from each individual doctor in the State.

CHARLES R. GRANDY, M. D.,
President, Medical Society of Virginia.

Department of Clinical Education

OF THE MEDICAL SOCIETY OF VIRGINIA

Extension Work in Graduate Education.

Arrangements are going forward steadily for the County Society Clinics to be given in various sections of the State during the coming Spring, Summer and Fall.

The preparatory work for these is necessarily slow, as much correspondence is necessary, but the spirit of co-operation evidenced has been most gratifying and encouraging.

It is urged that any County Society, or in fact any individual members, desirous of having a clinical meeting in any particular locality, advise this Department, and its services will be immediately available for cooperation with the local County Society.

A Reply to an Enquiry

In order that the aims and ultimate objectives of this Department may be thoroughly understood by our entire membership, opportunity is herewith taken, because every practitioner in the State is being reached by this issue, through the courtesy of our President, Dr. Grandy, to repeat these, as given below in a summary of a recent reply to a letter of enquiry from the Director of Study of the Commission on Medical Education of Connecticut. A brief summary of this reply is as follows:

1. The Department of Clinical Education was instituted at the last annual meeting of the State Society, with the purpose of keeping practicing physicians abreast of current developments in Medicine and Surgery;
2. Its main features comprise methods, such as clinical meetings, etc., in various local centers, sponsored by the local County Societies, and more extended and specialized Post-Graduate Educational and Clinical courses by the two Medical Colleges of the State;
3. Other collaborative features that will be put into effect gradually are professional educational courses, published regularly in the Monthly, radio addresses to doctors, and personal clinical privileges secured on stated days in local hospitals for members of the profession;
4. An interchange of Clinicians from one district, or city, or college to another, as occasion offers;
5. These, and other methods of practical clinical education will be used, as opportunity affords, to meet existing needs in special localities;
6. The Department of Clinical Education is representative of all personal and professional interests in the State, being composed of three representatives from the State Society, one each from the two Medical Colleges, one from the State Department of Health, and an Acting Executive Secretary, together with an Advisory Board, and the assistance of the ten Councilors representing the ten Congressional districts in the State;
7. The basic unit of service is the County Society, with the State Society as sponsor and the connecting link, and the Department of Clinical Education as the instrument in fusing and energizing the various activities; and
8. The aim, briefly stated, is to use these methods for cooperative professional study for individual benefit, and the advancement of the profession.

It is impossible to realize at once all of these objectives. At first, the ardent hope is to arouse the practitioners of the State to the obligations of their profession upon themselves, and their responsibility to themselves and others less favored by professional contacts, and concurrently stimulate interest in their local and State Societies. Unification of action is sought, for its power and influence are irresistible. Disease can no longer be fought successfully by the physician, alone or unaided—even though he be a Hippocrates or Jenner—for its approaches are many and diverse, and its prevention and repulsion can be accomplished only by a council of many men of many minds. Individualism is no longer possible or wholly effective, either in life or in disease.

February Meeting

The February meeting of this Department was held in conjunction with the Councilors. All of the members were present, and reports were given from all of the different sections of the State. From these sources of information

through the Councilors, the Department is proceeding to formulate clinical meetings for the Spring and Summer months. An announcement from Mr. Frank Bane, Commissioner of Public Welfare of Virginia, was made, stating that, with the cooperation of the officials, the clinical material in the State institutions under his direction, was offered through the Department of Clinical Education, to the medical profession of Virginia for clinical use and study.

This statement, carrying as it did, the opportunity for study of more than seven thousand clinical cases of all types and varieties of disease-conditions, was received with great pleasure and appreciation.

Dr. C. R. Grandy, President of the State Society, offered a resolution of thanks to Mr. Bane, which was unanimously voted. This generous action on the part of the commissioner and State officials will be most genuinely appreciated by the profession of the State, for it is the first time in our medical history, that these institutions have been offered as a whole, for professional use and clinical study. Thus, there will soon be mutual introductions professionally: the officials and the institutions to the doctors, and the doctors to them.

The positive benefits directly derived on both sides will be equaled reflexly in the future only by a fuller and more appreciative professional evaluation of each other. It will take time to realize upon the values of this wonderful opportunity now offered, but the future will show great and increasing dividends of possible and realized assets in a better and a more sympathetic understanding by the profession of many phases of disease.

Clinical Meetings

—*On March 11th*, the Southside Virginia Medical Association, composed of a membership from twenty county medical societies in the surrounding territory, will convene in the new auditorium of the Central State Hospital at Petersburg, of which Dr. H. C. Henry is Superintendent.

This session of the Association will inaugurate the first of the General State Institutional Clinics in cooperation with the Department of Clinical Education of the State Society.

Dr. J. A. Grizzard, Drewryville, Va., is President of the Association, and Dr. R. L. Raiford and Dr. Wright Clarkson have charge of the program, which will consist of various clinics and medical discussions, a detailed list of which is being sent out to the members and all interested physicians in this locality. Briefly summarized, the program is as follows:

The meeting will begin at 2:00 P. M., and a symposium of five papers on syphilis, including one from invited guest, Dr. C. C. Coleman, will continue until 4:30 P. M.; from 4:30 to 5:30 P. M. a medical clinic will be held under the direction of Dr. Mason Romaine, and during the same hours a surgical clinic will be held under the direction of Dr. George H. Reese, and from 5:30 to 6:30 P. M. a psychiatric clinic will be held with Dr. William A. White, Superintendent of St. Elizabeth's Hospital, Washington, D. C., invited guest, who will makes the principal address of the occasion.

This is the first time that any one of the State Institutions has been opened for the benefit and instruction of the profession, and the success of this meeting (which unfortunately occurs before publication of this issue) will be an assurance of the future value of this vast amount of clinical material for the advancement of medical progress in the State.

—*On March 31st*, the Norfolk County Medical Society, in conjunction with the Department of Clinical Education of the Medical Society of Virginia, will put on an all day medical and surgical clinic. Clinics will be held at the Norfolk Protestant Hospital in the morning, beginning at 10:00 o'clock, and at St. Vincent's Hospital during the afternoon, beginning at 2:00 o'clock. In the evening an address will be delivered by invited guest, Dr. Chevalier Jackson, of Philadelphia.

Luncheon will be served at 1:00 P. M. by the Norfolk Protestant Hospital, and a buffet supper will be served at 6:00 P. M., the place to be announced later.

The medical profession is cordially invited to attend. A detailed program will be announced later.

The Committee on Arrangements consists of Dr. C. L. Harrell, chairman, and Drs. B. E. Harrell, R. D. Glasser, and J. H. Culpepper.

The Committee on Program consists of Drs. J. L. Rawls, W. B. Martin, F. C. Rinker and W. P. McDowell, and a detailed program will be mailed to each physician in Eastern Virginia about March 15th.

It is confidently believed that this clinic will be exceptionally interesting and instructive, and it is hoped that there will be a large at-

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tendance from all sections along the seaboard, including North Carolina.

—*On April 22nd*, beginning at 2:00 P. M., the Richmond Academy of Medicine, composed of the counties of Henrico and Chesterfield, in cooperation with the Department of Clinical Education, will hold a Post-Graduate clinic for doctors in Virginia during the afternoon and evening. Dr. W. H. Higgins is president and Dr. R. Finley Gayle chairman of the committee on program.

Several short clinics at which the cases will be demonstrated at the Memorial Hospital and St. Philip's Hospital, will be shown in the afternoon. There will also be practical demonstrations of the newer methods of diagnosis, such as the actual use of the Electro-Cardiogram and the Basal Metabolism determination.

In the evening, the guest speakers will be Dr. O. H. Perry Pepper, Professor of Medicine at the University of Pennsylvania and Dr. H. L. Amoss, who is the new Professor of Medicine at Duke University. The program more in detail will be given later, but the above announcement will be a sufficient guarantee of the clinical and educational opportunities that will be offered, and to which all practitioners are cordially invited. As this is the first time that the Richmond Academy of Medicine has offered such a clinic program, it is hoped that there will be a large attendance.

—*On April 25th*, the Clinch Valley Medical Society, composed of representatives from seven county societies in the extreme Southwestern part of the State, will meet at Richlands in the Mattie Williams Hospital. Dr. W. R. Williams, who has charge of this hospital, is chairman of the local committee of arrangements, and Dr. C. B. Bowyer has charge of the program. At his request, this department will aid him in securing lecturers and clinicians on medicine, surgery, obstetrics, and children for this meeting, and a fuller announcement will be made in this section next month.

Former meetings of this society have been of unusual interest, and have furnished most excellent clinical educational programs.

—*During the first week in May*, the Graduate Clinics at the University of Virginia will be held. The detailed program of this course will be published later, and also that of the Medical College of Virginia, which will be held early next Fall.

These Post-Graduate courses at the Medical Colleges will be more extended, and in their development it is hoped that they may be so correlated that physicians in the State may have the opportunity of attending both, and pursuing more specialized lines of study and clinical work. It is believed that the profession of the State will appreciate the opportunities thus offered, and will begin to make their arrangements to attend them.

—*At an early date in the Spring*, Piedmont Sanatorium at Burkeville is scheduled to hold a T. B. clinic with personal and instrumental demonstrations.

Former clinical meetings at this Sanatorium have been of great benefit and interest to the colored physicians of the State.

—The Southwestern Virginia Medical Society, including the counties of Bland, Carroll, Giles, Grayson, Montgomery, Pulaski, Smyth, Washington and Wythe, has completed the program for its March meeting before the publication of this issue, but the full program of its Fall meeting will be published when ready.

Norfolk County Medical Society.

March 3rd. Business Meeting.

March 10th. Dr. B. E. Harrell—Contracted Vesicle Neck.

March 17th. Dr. Warren Vaughan—Protein Sensitization.

March 24th. Dr. F. D. Wilson—Progress of Pediatrics in 1929.

March 31st. Special Meeting. Morning—Clinics at Norfolk Protestant Hospital. Afternoon Clinics at St. Vincent's Hospital. Evening—Address—Dr. Chevalier Jackson.

Any member of the Medical Society of Virginia will always be welcome at the meetings of the Norfolk County Medical Society.

Other County Societies

A considerable number of other local county societies are making arrangements to hold clinical meetings this Spring and Summer, and as soon as these are perfected, announcement will be made.

To all participating in these and future clinical meetings, this Department wishes to offer its services in any reasonable way desired, such as assisting in furnishing speakers, making up programs, advertising the meetings, etc.

It is in no sense the purpose of this Department to dictate, but to cooperate.

Advice to Members

Dr. J. W. Preston, Chairman of the Committee on Medical Education and Hospitals of the State Society, in writing recently to a Councilor, urges individual work on the part of each member as follows:

"The purpose of this letter is in my capacity as Chairman of the Committee on Medical Education and Hospitals to offer you any assistance I may be able to give in connection with your plans in our district. I am quite sure that Dr. Hodges has written you, and I want you to know that I am thoroughly interested, and hope that I may in some way be of help.

"Dr. Hodges is laying a broad foundation, and I feel as I am sure you do, that quite a responsibility rests upon all of us, and especially upon those who hold official positions of any character in the organization to keep our shoulders to the wheel, and help make a success of what offers more in the way of raising the standard of medicine in the State than any movement of recent years."

Information

All members of the State Society are requested to write for any information desired on any subject relative to these Extension Courses in Graduate Medical Education, either to the Acting Executive Secretary, Mr. George W. Eutsler, P. O. Box 707, University, Va., or to the Chairman of the Department of Clinical Education, 5 East Franklin Street, Richmond, Va.

The Truth About Medicine

In addition to the articles enumerated in our letter of December 28, the following have been accepted:

Abbott Laboratories
- Butesin Picrate Eye Ointment.

Lakeside Laboratories, Inc.
- Ampoules Dextrose (d-Glucose), 10 Gm., 20 c.c.
- Ampoule No. 51, Sodium Cacodylate 0.243 Gm. (3¾ grains), 5 c.c.

H. K. Mulford Co.
- Pneumococcus Antibody Solution, Types I, II and III Combined—Mulford, four 50 c.c. double-ended vials.

The following articles have been exempted and included with the List of Exempted Medicinal Articles (New and Non-official Remedies, 1929, p. 481):

Davies, Rose & Co., Ltd.
- Pil. Digitalis (Davies, Rose).

Kings County Packing Co.
- Sac-A-Rin Brand California Bartlett Pears.
- Sac-A-Rin Brand California Tidbits Hawaiian Pineapple.
- Sac-A-Rin Brand California Royal Anne Cherries.

Lakeside Laboratories, Inc.
- Ampoule No. 64, Calcium Chloride 10%.

NEW AND NON-OFFICIAL REMEDIES

Diphtheria Toxoid-National.—A diphtheria toxoid (New and Non-official Remedies, 1929, p. 368), prepared from seven-day cultures of the diphtheria bacillus that yield a toxin having an L+ dose of not less than 0.25 c.c. The toxin is treated with formaldehyde. The finished product is tested for antigenic potency. The product is marketed in packages of three vials (one immunization treatment); in packages of one vial (fifteen immunization treatments); in packages of forty-five vials (fifteen immunization treatments). The National Drug Co., Philadelphia.

Scarlet Fever Streptococcus Antitoxin—Cutter.—A scarlet fever streptococcus antitoxin (New and Non-official Remedies, 1929, p. 350), prepared by the method of Drs. Dick, by license of the Scarlet Fever Committee, Inc. It is marketed in packages of one syringe containing 2,000 units, and in packages of one syringe containing 6,000 units. Cutter Laboratory, Berkeley, Calif.

Typho-Bacterin Mixed (Triple Vaccine TAB).—This product (New and Non-official Remedies, 1929, p. 380), is also marketed in packages of thirty 1 c.c. vials, being ten immunizations of three doses each. H. K. Mulford Co., Philadelphia. (Jour. A. M. A., January 4, 1930, p. 31).

Ampules Sodium Cacodylate—Mulford, ¾ grain, 1 c.c.—Each ampule contains sodium cacodylate (New and Non-official Remedies, 1929, p. 73), 0 05 Gm. (¾ grain), in 1 c.c. of sterile solution, with 1 per cent of benzyl alcohol. H. K. Mulford Co., Philadelphia.

Ampules Sodium Cacodylate—Mulford, 3 grains, 1 c.c.—Each ampule contains sodium cacodylate (New and Non-official Remedies, 1929, p. 73), 0.2 Gm. (3 grains) in 1 c.c. of sterile solution, with 1 per cent of benzyl alcohol. H. K. Mulford Co, Philadelphia.

Ampules Sodium Cacodylate—Mulford, 5 grains, 1 c.c.—Each ampule contains sodium cacodylate (New and Non-official Remedies, 1929, p. 73), 0.32 Gm. (5 grains) in 1 c.c. of sterile solution, with 1 per cent of benzyl alcohol. H. K. Mulford Co., Philadelphia.

Erysipelas Streptococcus Antitoxin (Concentrated)—Mulford.—This product (New and Non-official Remedies, 1929, p. 349), is also marketed in packages of one 10 c.c. syringe containing 500,000 protective units. H. K. Mulford Co., Philadelphia. (Jour. A. M. A., January 11, 1930, p. 105).

Curdolac Casein—Bran Improved Flour.—A flour prepared from casein, carbohydrate-free bran, and soya bean, to which leavening and flavoring have been added. It may be used for the preparation of muffins or bread having a comparatively low carbohydrate content and low food value, with bulk. Curdolac Food Co., Waukesha, Wis.

Curdolac Soya—Bran Flour.—A flour prepared from soya bean and a starch-free bran with a leavening mixture. It may be used for the preparation of bread and muffins for use in diets in which a comparatively low carbohydrate content is desired. Curdolac Food Co., Waukesha, Wis.

Curdolac Breakfast Cereal.—A medicinal food pre-

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pared from soya beans blended with wheat products, including starch-free bran. It may be used as a hot food in diets in which a comparatively low carbohydrate content is desired. Curdolac Food Co., Waukesha, Wis.

Curdolac Casein Compound.—A flour prepared from casein, vegetable fiber and a leavening mixture to which sodium chloride and gluside are added. It may be used for the preparation of carbohydrate-free bread, muffins, cake, etc., for use in diets in which a relatively low carbohydrate content is desired. Curdolac Food Co., Waukesha, Wis

Curdolac Soya Flour.—A flour prepared from the soy bean. It may be used for the preparation of foods in diets in which a relatively low carbohydrate content is desired. Curdolac Food Co., Waukesha, Wis.

Curdolac Wheat—Soya Flour.—A flour prepared from soya beans, starch-free bran and a small proportion of wheat, with leavening and flavoring. It may be used for the preparation of muffins, cakes, waffles, etc., of well balanced food value for use in restricted diets. Curdolac Foods Co., Waukesha, Wis.

Curdolac Soya-Cereal Johnny Cake Flour.—A flour prepared from soya beans and cereal products, to which leavening and flavoring have been added. It may be used in the preparation of muffins, cakes, waffles, etc., for use in diets relatively low in carbohydrate, designed for those who cannot use products made with bran. Curdolac Food Co., Waukesha, Wis.

Curdolac Soya-Bran Breakfast Food—A medicinal food prepared from soya beans and a starch-free bran, to which has been added leavening, flavoring, gluside, and oils without food value. It may be used in diets in which a low carbohydrate content is desired. Curdolac Food Co., Waukesha, Wis. (Jour. A. M. A., January 18, 1930, p. 185).

PROPAGANDA FOR REFORM

Crystalline Pepsin.—Within a comparatively few months successive announcements of the isolation of crystalline insulin, crystalline tuberculin, crystalline urease and crystalline pepsin have followed one another. This crystalline pepsin possesses all the enzymatic properties: it hydrolyzes gelatin, casein, egg albumin and edestin in acid solution and is rapidly inactivated by alkali or heat. It crystallizes in small prisms. The highest peptic activity thus far secured is about 1:20,000 U. S. P. (Jour. A. M. A., July 27, 1929, p. 285).

Effects of Continuous Use of Allonal and Amytal.—"Allonal," according to a report of the Council on Pharmacy and Chemistry (Jour. A. M. A., June 12, 1926, p. 1853,) is a preparation containing a combination of allylisopropylbarbituric acid and amidopyrine mixed with free allisopropylbarbituric acid and an excess of amidopyrine. "Amytal" is stated to be iso-amyl-ethyl barbituric acid. The effects from the continuous use of either of these drugs in doses of two tablets daily cannot be stated accurately in a few words because the barbituric acid derivatives give rise to an extraordinary variety of symptoms under different conditions. It is possible that no ill effects would follow from such daily doses in a healthy adult in whom sleeplessness resulted solely from unusual cerebral activity, if the use were not too prolonged. At the other extreme, such doses taken continuously over a long period by an invalid suffering from a serious condition in which various other drugs were taken might lead eventually to the typical symptoms of barbital poisoning, with pneumonia and death. Neither Allonal nor Amytal stands accepted by the Council on Pharmacy and Chemistry. (Jour. A. M. A., May 25, 1929, p. 1783.)

Bacteriophage as a Therapeutic Agency.—The bacteriophage has been slow to gain acceptance as a possible agent in the warfare against infection. Recent investigations show the many difficulties connected with the successful use of bacteriophage and also the advantages which they have over other agents. While bacteriophage preparations give promise of eventually becoming valuable additions to the physician's armamentarium, it should be remembered that the whole subject is still in the experimental stage. When vaccine therapy was new and in the ascendency, manufacturers offered specific vaccines for almost every human ailment and "mixed vaccines" of startling complexity. The Council on Pharmacy and Chemistry not only rejected most vaccine mixtures but has during recent years been obliged to omit a considerable number of simple vaccines because the results obtained with them did not measure up to the evidence which investigators supplied in the height of enthusiasm. Manufacturers are already marketing bacteriophage preparations, simple and mixed. Warrant for the use of such mixtures has not so far become evident and the Council on Pharmacy and Chemistry has postponed the acceptance of simple preparations to await further evidence in favor of their usefulness. (Jour. A. M. A., July 13, 1929, p. 121).

More Deaths from Thallium.—Three more deaths from thallium poisoning are reported. Three boys, aged ten, eleven and twelve years, respectively, received successive doses of thallium acetate for ringworm. Although influenza had left one of them apathetic and the other two were mentally dull since birth and all three were undernourished the dose of 0.008 Gm. per Kg. of body weight was either given or its administration begun. The effort to give the calculated amount in divided doses caused death as have other similar attempts. Only one dose should be given and for children infirm in any way, this should be less than the usual amount. (Jour A. M. A., July 13, 1929, p. 122).
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Pharmaceutic Preparations of Ephedra Not Acceptable For N. N. R.—The Council on Pharmacy and Chemistry points out that during recent years much attention has been given to the alkaloid ephedrine and that the free base, ephedrine, and two salts, ephedrine hydrochloride and ephedrine sulphate, have been admitted to New and Nonofficial Remedies. Further, that the alkaloid ephedrine is one of the alkaloids contained in the drug ephedra (*Ephedra equisetina, ma huang*), which contains also an indefinite and variable mixture of bases related to ephedrine but differing quantitatively and possibly qualitatively in their actions. A chemical assay of pharmaceutic preparations of ephedra, has, therefore, no value as a measure of their therapeutic potency, having no bearing on therapeutic activity. The Council holds the use of unstandardized preparations of a potent drug to be a step backward, and is distinctly undesirable when standardized preparations (in this case the isolated alkaloid ephedrine and its salts) are practically available. The Council therefore decided that pharmaceutic preparations of ephedra must be considered unacceptable until their therapeutic value in comparison to ephedrine has been established. (Jour. A. M. A., June 22, 1929, p. 2101.)

Poisoning From Methyl Chloride Used in Domestic Refrigerators.—At the 1929 annual session of the American Medical Association the House of Dele-

gates, recognizing the dangers of toxic gases used in industry and in the home, asked the Board of Trustees to appoint a committee to look into the situation and to advise the medical profession and the public for the good of the public health. In the meantime additional deaths from the use of methyl chloride in mechanical refrigeration have occurred in Chicago as determined by a special coroner's jury, which has recommended the discontinuance of the use of methyl chloride as rapidly as possible, the temporary use of warning gases with methyl chloride until substitution of some less hazardous gas shall be made, and a definite warning by manufacturers to users of such apparatus as to the hazards involved. (Jour. A. M. A., July 27, 1929, p. 288).

Blood Sugar Testing Outfits.—The various blood sugar testing outfits on the market are, for the most part, satisfactory for clinical work, especially when one wishes to follow the blood sugar values from time to time. None of these instruments are as reliable as the special methods advanced in the literature, but most of them are based on principles of these tests, so that the difference is largely one of degree of accuracy of the results. If one uses the same instrument or method on different specimens of the patient's blood, whatever error there may be in the outfit or method employed is introduced at each testing, so that the results obtained are comparable. It is hard to see how the Sheftel sugar test can yield anything more than a rough estimate of the sugar contents. The claim of a percentage of error of less than 0.1 per cent is so ridiculous as to throw discredit on the originators. (Jour. A. M. A., August 3, 1929, p. 403).

Pituitary Liquid (Surgical) Armour, Pituglandol—Roche, Pituitary Extract—Lederle 20 Units, Pituitary Extract—Lilly (Surgical), Pituitary Extract Surgical—Merrell, Solution Pituitary Extract Surgical—Mulford, Pituitrin "S" (Surgical), and Pituitary Solution Surgical—Wilson Omitted from N. N. R.—The Council on Pharmacy and Chemistry reports that a reliable method of standardization for pituitary was made official in the tenth revision of the U. S. Pharmacopeia. While up to that time the Council had recognized solutions of pituitary of various strengths, when an exact standard had been made available, the Council decided that it was not in the interest of rational therapy to market strengths different from that of the pharmacopeial product. The Council therefore has omitted all pituitary solutions differing from the pharmacopeial strength from New and Non-official Remedies, 1929. (Jour. A. M. A., August 17, 1929, p. 524).

The Action of Digitalis in Heart Failure—Clinicians have generally accepted the pharmacologic evidence that digitalis causes a more vigorous and larger ventricular contraction. But it is difficult to accept the view that a muscle such as the heart, which cannot rest after being overstimulated, is improved by being forced to beat harder. It has now been shown that the efficiency of the heart, or its capacity for doing a fixed amount of work with least oxygen consumption, varies inversely with its diastolic volume. It was shown further that digitalis causes the heart to decrease its diastolic volume while carrying a constant load. Thus, digitalis reduces the energy requirement of the heart or permits it to do more work with the same expenditure of energy. (Jour. A. M. A., August 17, 1929, p. 548).

Use of Combination of Barbital and Amidopyrine.—There seems to be no reason to doubt that a mixture composed of one of the analgesic drugs, such as amidopyrine, acetylsalicylic acid, acetanilid or acetphenetidin, and a hypnotic drug of the barbital type is more effective in relieving pain than is either of the components alone. This type of mixture was popularized apparently, if not originated, by von Noorden, who reported that a mixture containing 0.3 Gm. of barbital, 0.25 Gm. of acetphenetidin and from 0.0025 to 0.03 Gm. of codeine was equal in effect to 0.6 Gm. of barbital without the side action of the latter, but he did not present satisfactory evidence in support of that statement. At present there is a large number of proprietary remedies of this general type on the market. There has been apparently no satisfactory clinical comparison of the pain-relieving power of any of these preparations with that of the simple analgesics. A mixture of barbital and amidopyrine is probably as useful as any of the expensive proprietary preparations of this type. The action of the hypnotic may outlast that of the analgesic; hence they may be used separately, the analgesic being repeated more frequently than the hypnotic. (Jour. A. M. A., August 31, 1929, p. 713).

Acquired Pollen Hypersensitiveness.—In order to account for acquired pollen hypersensitiveness, clinicians usually assume that at some previous time the patient has inhaled, has swallowed or has otherwise been inoculated with a specific pollen. According to this hypothetic etiology the patient should be equally hypersensitive to the individual proteins of this pollen, assuming, of course, that these proteins are all equally antigenic. That such patients are not thus equally hypersensitive appears from recent work. This work throws doubt on the common assumption that acquired pollen hypersensitiveness is due to previous exposure to a specific pollen, and equal doubt therefore on the rationale of current methods of antiallergic therapy. (Jour. A. M. A., August 31, 1929, p. 697).

Ergot Preparations Omitted From N. N. R.: An Explanation.—In the Journal of the American Medical Association, May 4, 1929, there was published a report by the Council on Pharmacy and Chemistry on certain preparations of ergot which were intended for hypodermic administration. This report stated that the preparations had been omitted from New and Nonofficial Remedies because they were essentially watery extracts of ergot and therefore contained little or none of the specific alkaloids of the drug; because, with one exception they were not assayed by any method which showed their alkaloid content; and that an examination had shown that they were practically devoid of the specific alkaloids. Inasmuch as there seems to be in certain quarters some misunderstanding of the action, the Council on Pharmacy and Chemistry points out that the reasons for omitting these preparations are those stated in its report, and the Council emphasizes that no evidence was found to indicate that in any case there was adulteration, or that improper ergot had been used in the manufacture of these products. Nor was any preparation found to be unduly toxic. (Jour. A. M. A., September 7, 1929, p. 769.)

Book Announcements

Pawnee Music. By FRANCES DENSMORE. Smithsonian Institution. Bureau of American Ethnology. Bulletin 93. United States Government Printing Office. Washington. 1929. Octavo of 129—xviii pages. Illustrated. For sale by the Superintendent of Documents, Washington, D. C. Price 90 cents.

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Editorial

Prophylactic Measures in Measles.

Measles needs no advocate to emphasize its dangers. While it is a common disease, rarely is it an infection that may be safely treated with indifference or neglect without running serious pathological risks. Many serious complications have risen, irremediable and dangerous to life and happiness, following measles. While it is true that children, in most instances, bear this infection well, among the one-year-olds the mortality is high, and even to the four-year-olds, pneumonias are not infrequent. In addition, following upon the train of measles, latent tuberculosis and other constitutional affections may appear. Measures of prevention of measles, that promise reasonable success, should, therefore, receive the close attention of pediatricians and practitioners. Silverman* has recently attempted a process of immunization from convalescent serum in community epidemics. Blood pools were formed by Siegel and Ermann. In March-April, 1928, an epidemic among school children in Philadelphia offered occasion for an effort along this line. Fifty-five susceptible children in an institution, all of whom had been exposed to measles, were inoculated with pooled blood (Wassermann negative) of adults, and none of them developed measles. It is felt that the blood serum of adults who have had the disease presumably contains anti-bodies and that pooled blood of such adults, injected under proper conditions and doses, particularly in an institution for children, may offer a means of prevention.

*A. J. M. Sc., February, 1930, page 192.

Secondary Anemia.

Secondary anemia, without gross signs of hemorrhage, frequently presents puzzling clinical conditions. Practitioners may wonder over such cases, thinking strongly in terms of pernicious anemia, probably when investigation shows a lack of cardinal criteria for that malady. Secondary anemia following upon known hemorrhage offers no such question. Secondary anemia may stealthily advance to prominence in a clinical picture before discovery is made of some underlying bleeding point. So, with all, it becomes a matter of clinical interest to read the short publication of Douglas and Tannenbaum* on this subject.

They observed, very properly, that there are three mechanisms concerned in the production of anemia, namely: (1) hemorrhage; (2) diminished production of blood or impaired delivery of erythrocytes from hematopoietic tissue into the circulation; and (3) destruction of blood. In making their study, they relied on the fact that the recticulated cell count furnishes the most accurate index of bone-marrow function, and that the icteric index gives the best measures of the breakdown of hemoglobin, except in hepatic disease or obstruction of biliary passages. They studied three groups of cases: (1) secondary anemia with no evidence of hemorrhage or obvious destruction of blood; (2) secondary anemia with hemorrhage; and (3) non-anemic including normal controls.

It was found by these workers that cases of anemia may be grouped etiologically if the reticulocyte count and the icteric index are known and that they may be classified as due to (1) hemorrhage, (2) diminished production of blood or faulty delivery of red cells into the circulating blood, (3) destruction of blood, or (4) combinations of such factors. In twenty cases of secondary anemia without hemorrhage, the reticulocyte counts were normal and the icteric indices were normal or blood normal.

In those common forms of secondary anemia, as found in chronic nephritis, abscess of lungs, or acute rheumatic fever, the condition results from diminished production of blood. Their study included such conditions as syphilitic aortitis, tonsillitis, grippe, infectious arthritis, gonorrheal arthritis, chronic nephritis, acute rheumatic fever, abscess of the lung, chronic pulmonary tuberculosis, lobar pneumonia, chronic myocarditis, and chorea.

*Archives Internal Medicine, Vol. 45, No. 2, page 248.

Secondary Anemia in Pregnancy and Puerperium.

Anemia complicating pregnancy has been studied for much of a century. A historical review covers publications of literature since 1836. One should note with interest the historical consideration of this subject, because hemoglobin estimations and erythrocyte counts in pregnant women have long been of interest. Practitioners, attending the pregnant woman, may find in the publication of Bland* and others, ready reference to the present day conception of the complication, for they report a study of three hundred patients. It is interesting to note that the factors at work that produce the anemia of pregnancy are not known.

Some have claimed that the condition is not pathologic. These workers state that of 200 ward patients with red cell counts below 3.5 million, there were one hundred. Of 100 private patients, 26 per cent gave counts below 3.5 million at term; and 42 per cent of the total 300 gravid women showed counts below 3.5 million, regardless of the time of examination. It was also found that 82 per cent of the 200 ward patients and 62 per cent of the 100 private patients gave hemoglobin determinations at 75 per cent or below. The possible etiologic factors offered included "ill-health," foci of infection, toxemia, and syphilis, but no confirmation was made of this. It was remarkable to have impressed with what rapidity a large number of the anemic cases recovered normal blood values within a few days after delivery. The withdrawal of iron from maternal corpuscles by the fetus, the existing hydremia of pregnancy, and pre-existing chlorosis, may serve as a means for thought in this connection. The removal of these factors seemed to occasion a return to normal within a short time.

Chronic Idiopathic Secondary Anemia.

After considering secondary anemia in its two main groups, (1) those cases due to hemorrhage and (2) those cases due to some organic lesion, there remains a group of cases, idiopathic in type. Naturally, this type, being of unknown origin, offers greater difficulties in treatment. In view of this situation, Watkins† has studied this type of secondary anemia.

In the outset, attention is drawn to characteristic features of regeneration and degeneration in idiopathic secondary anemia. Regeneration may be itemized by (1) anisocytosis, variation in the size of erythrocytes, with a liberal number of macrocytes; (2) poly-chromatophilia; (3) reticulocytes; (4) normoblasts, nucleated erythrocytes of the definite series, and (5) multiple Howell-Jolly bodies. Degeneration may be summarized by (1) anisocytosis, variation in the size of erythrocytes, with a high proportion of microcytes; (2) hypochromasia; (3) anochromasia, piling up of hemoglobin around the peripheral portion of the cell. Besides this, there is a tendency, says Watkins, toward a shift to the right of the myeloid leukocytes and other features of hemoglobin interest.

Watkins assorts four general types, according to the morphologic blood picture. The first, he says, occurs in young persons and usually in females. Hemoglobin is proportionally reduced 55 per cent, erythrocytes averaging about 4 million, and a color index of 0.5 to 0.6. Reticulocytes are normal or slightly increased. Morphologically, anochromasia, moderate anisocytosis, slight hypochromasia and slight polychromatophilia, are observed. He calls this the chlorotic type because of its similarity to the blood picture of chlorosis.

The second type is marked by a proportionate reduction in hemoglobin and erythrocyte count, and color index is approximately 1. A decrease of erythrocytes is noted; they may be absent entirely; besides the leucocyte count is slightly reduced. Normochromasia and anochromasia, moderate anisocytosis, with macrocytosis or polychromatophilia are observed in this type. But, morphology of the granular leukocytes, says Watkins, is most characteristic of this type; the neutrophils are slightly decreased in size; the majority of the cells have a nucleus of four or five lobes. Treatment of this type is best conducted by efforts directed toward stimulation of activity of bone marrow, such as transfusion, intramuscular injections of whole blood, and use of an experimental extract of bone marrow.

The third type is found in women of 30 to 50 years. Insidious in onset, years may mark this type before the patient comes in for treatment. In such cases there may be associated achlorhydria, suggestive of pernicious anemia, yet these cases are not true pernicious anemia. In this type of chronic secondary anemia, says Watkins, the proportion of hemoglobin is reduced, ranging from 45 to 50 per cent and the

*A. J. M. Sc., January, 1930, page 48.
†Chas. H. Watkins, J. A. M. A., November 2, 1929, page 1365.

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erythrocyte count remains high; the reticulocytes are increased and the leukocytes are normal in count. Morphologically, hypochromasia of erythrocytes, slight anchromasia and slight polychromatophilia mark this type. Bone marrow in this type appears normal and there is no dysfunction in synthesis of hemoglobin, apparently. To meet this, it was thought that the fetal liver of calves, obtained at the time of the greatest hematopoietic function of the liver, might stimulate synthesis in the body of hemoglobin. So three hundred grams of raw fetal liver was given and there was a marked response in nearly all cases.

The fourth type is found in a young patient whose parents or near relatives have pernicious anemia. Erythrocytes are reduced and the hemoglobin is reduced so the color index is below 1.

News Notes

Invited Guests for Meeting of State Society.

Our president, Dr. Charles R. Grandy, Norfolk, Va., announces that he will have Dr. William S. Thayer, of Baltimore, and Dr. David Lyman, of New Haven, Conn., as his invited guests for the Norfolk meeting of the Medical Society of Virginia. We feel we are fortunate in Dr. Grandy's selection and in the acceptance of the invitation by these two men and hope we shall have a large attendance.

As announced in the February MONTHLY, the Council has set October 21, 22 and 23 as dates for this meeting.

The Tri-State Medical Association of the Carolinas and Virginia

Had a splendid meeting in Charleston, S. C., in February, under the presidency of Dr. Cyrus Thompson, of Jacksonville, N. C. There was an attendance of about four hundred doctors. Richmond, Va., was selected as the 1931 place of meeting and Dr. William B. Lyles, Spartanburg, S. C., was elected president. Other officers for the ensuing year are: Vice-presidents, Dr. C. J. Andrews, Norfolk, Va., Dr. W. E. Warren, Williamston, N. C., and Dr. M. H. Wyman, Columbia, S. C.; secretary-treasurer, Dr. J. M. Northington (re-elected), Charlotte, N. C. The newly elected councilors are: Drs. DeWitt Kluttz, Washington, N. C., J. H. Cannon, Charleston, S. C., and H. J. Langston, Danville, Va. The councilors holding over are: Drs. J. Bolling Jones, Petersburg, Va., D. A. Garrison, Gastonia, N. C., W. P. Timmerman, Batesburg, S. C., Dean B. Cole, Richmond, Va., C. C. Orr, Asheville, N. C., and R. E. Seibels, Columbia, S. C.

It is planned to have the Richmond meeting feature clinico-pathological conferences and clinics even more than the last two meetings.

The American College of Physicians.

The fourteenth annual clinical session of the College, at Minneapolis, Minn., February 10-15, was one of its best meetings, both as to scientific program and clinics. The attendance passed the 1,350 mark. Those from Virginia were: Dr. John R. Hamilton, Nassawadox; Dr. James W. Hunter, Jr., Norfolk; Drs. Dean B. Cole, W. Randolph Graham and J. M. Hutcheson, Richmond; and Dr. J. W. Preston, Roanoke.

Virginia internists elected to fellowship in the College this year are: Drs. Dean B. Cole, Garnett Nelson, and Warren T. Vaughan, Richmond; and Drs. James T. Hunter, Jr., and C. Lydon Harrell, of Norfolk; while Dr. John R. Hamilton, Nassawadox, and Dr. W. Randolph Graham, Richmond, were elected to associateship.

Baltimore, Md., was selected as the 1931 place of meeting, the time to be in March or early April. Dr. Sydney R. Miller, president, will act as chairman of the general scientific program, and Dr Maurice C. Pincoffs will have charge of the clinical program and act as general chairman of the session.

The following officers were elected for the ensuing year: President, Dr. Sydney R. Miller, Baltimore; president-elect, Dr. S. Marx White, Minneapolis; vice-presidents, Drs. A. S. Warthin, Ann Arbor, Mich., Francis M. Pottenger, Monrovia, Calif., and John A. Lichty, Clifton Springs, N. Y.; secretary-general, Dr. George M. Piersol, Philadelphia; treasurer, Dr. Clement R. Jones, Pittsburgh; and executive secretary, Mr. Edward R. Loveland, Philadelphia.

One-third of the members of the board of governors (one from a State) are elected each year, the terms being for three years. These are considered the key men for each state, and serve in a supervisory manner for membership scrutiny and other College matters. The following were elected this year for Virginia and nearby states: Dr. J. Morrison Hutcheson, Richmond, Va.; Dr. Charles H. Cocke, Ashe-

ville, N. C.; Dr. Robert Wilson, Jr., Charleston, S. C.; and Dr. John N. Simpson, Morgantown, W. Va.

Grant Research to Medical College of Virginia.

The Committee on Scientific Research of the American Medical Association has made a grant to the Medical College of Virginia for the study of lung involvement in the human ascariasis. This work will be directed by Dr. F. J. Wampler, professor of preventive medicine and Dr. Lee E. Sutton, assistant professor of pediatrics.

Dr. Caspar L. Woodbridge,

Montgomery, W. Va., was recently awarded the Laird Memorial cup of the Fayette County (W. Va.) Medical Society, for having read the most original paper before that society during the past year. The title of his paper was "Blood Transfusion in the Septicemias." Dr. Woodbridge, who served for several years as a medical missionary in China, was located for a time at Pulaski, Va., after his return to this country.

The cup was presented the Fayette County Medical Society by Dr. William R. Laird, Jr., of Montgomery, an alumnus of the Medical College of Virginia, in memory of his uncle, Dr. J. M. Laird, who was the first president of that society.

Married.

Dr. Lee Edwards Sutton, Richmond, and Miss Ruth Rogan McClellan, of New York City, formerly of Bristol, Tenn., February 8.

New Appointments to Faculty of New York Polyclinic Medical School and Hospital.

The following have been appointed to the faculty of the New York Polyclinic Medical School and Hospital: Dr. Shirley W. Wynne, Health Commissioner of New York City, as professor of preventive medicine; Dr. Gaylord W. Graves and Dr. Alexander T. Martin as professors of pediatrics.

The International Society for Crippled Children

Is meeting in Toronto, Canada, March 17-19, with convention headquarters at the New York Hotel. Arrangements have been made for the delegates to visit public institutions and hospitals during the period of the Toronto meeting. It is also planned to hold several luncheon meetings in conjunction with the Toronto Service Club. Mr. Harry H. Howett, Elyria, Ohio, is executive secretary of this Society.

Report on Medicinal Tablets and Ampules Issued by U. S. Department of Agriculture.

Suggested tolerances on medicinal tablets and ampules, with methods of analysis, have been put in printed form by the U. S. Department of Agriculture at the instance of manufacturing associations.

The sixth and seventh reports of the committee representing The American Drug Manufacturers Association and The American Pharmaceutical Manufacturers Association, contains these proposed tolerances, for the information and consideration of the Department of Agriculture and the drug trade.

The medicinal tablets involved are: Caffeine citrated, bismuth subcarbonate, bismuth subgallate, bismuth subnitrate, and mercuric iodide; the ampules are of: Caffeine sodium benzoate, camphor in oil, pituitary extract surgical, silver nitrate, sodium cacodylate, sodium iodide, and sodium salicylate. Amendments to previous reports on calomel tablets and calomel and soda tablets are given in the report.

Copies of the report may be obtained from the Food, Drug, and Insecticide Administration, U. S. Department of Agriculture, Washington, D. C.

Pan-American Child Congress in Lima, Peru.

The Sixth Pan-American Child Congress will be held in Lima, Peru, July 4 to 11, 1930. Medicine, surgery, hygiene, social welfare, legislation and education will be the six general topics for discussion, the program for each being under the direction of a special section of the congress. For information address the Secretario General, VI Congreso Pan Americana del Nino, Apartado 987, Lima, Peru.

Dr. S. E. Gunn,

Hopewell, Va., left the middle of February for Rochester, Minn., to spend several weeks at the Mayo Clinic.

Dr. W. H. F. Miller,

Clifton Forge, Va., was elected senior warden of St. Andrew's Episcopal Church in that place, at a meeting of the vestry last month.

Dr. William J. Mayo to Give Lecture at Medical College of Virginia.

Dr. William J. Mayo, Rochester, Minn., has agreed to give the first lecture under the McGuire lectureship, at the Medical College of Virginia, Richmond. This lectureship was recently established by the board of visitors of the College, in recognition of the able service

of Dr. Stuart McGuire as president of the College, from which position he retired July 1, 1925. The lecture by Dr. Mayo will be given next Fall, at a date to be announced later. These lectures will be open to the general public and it is planned that they shall be of general interest rather than highly technical. Dr. Mayo is so widely known, that he needs no introduction to our readers.

Dr. A. L. Gray, Richmond, is chairman of the faculty committee appointed to arrange for inaugurating the McGuire lectureship.

Centennial Meeting of the Tennessee State Medical Association.

The Tennessee State Medical Association will celebrate the one hundredth anniversary of its organization, in Nashville, April 8th, 9th, and 10th.

Dr. H. H. Shoulders, secretary-editor, takes this means of extending an invitation to all members of the Medical Society of Virginia to attend. We hope many of our members may avail themselves of this opportunity.

At the meeting of our Council in February, Dr. Charles R. Grandy, president, was appointed as the official representative from the Medical Society of Virginia.

Visiting in Florida.

Drs. L. A. Robertson and W. O. Lee, of Danville, Va., spent the latter part of February on a fishing trip in Florida.

National Child Health Day 1930.

Each successive May Day centers its work upon one particular thing vital to the health and well-being of childhood. This year it addresses itself to the fathers and mothers of the United States, as upon them depends the success of all efforts to ensure a sound mind in a sound body to every child. Therefore, the special keynote of 1930 is "Parent Cooperation in Community Child Health and Protection." The state's official health work will be effective for children in proportion to the intelligent cooperation of the parents.

May Day—National Child Health Day 1930—asks of parents and health workers intelligent cooperation in the nation's child health program. The President can call a White House Conference on Child Health and Protection; others can say, "Let us consecrate May Day to the children of the United States." But only parents by their cooperation can make the results of the Conference practical in the life of the child, and can translate the ideal of May Day into child health, child happiness, and child success.

Dr. Charles H. Peterson,

Until recently an instructor in roentgenology at the University of Virginia, Department of Medicine, has moved to Roanoke, Va., and become roentgenologist at Jefferson Hospital, that city.

Dr. John A. Tyree,

Who was a patient at Stuart Circle Hospital, Richmond, in January, remains critically ill at his home in Danville, Va.

U. S. Civil Service Examinations.

The U. S. Civil Service Commission, Washington, D. C., announces open competitive examinations for: Trained nurse and trained nurse (psychiatric), applications to be on file with the Commission in Washington, not later than April 8; and for social worker (psychiatric) and junior social worker, applications to be on file with the Commission not later than June 30.

Dr. Carroll G. Bennett,

Recently of Johnston-Willis Hospital, Richmond, Va., is now associated with Dr. S. E. Massey, at Amonate, Tazewell County, Va. Dr. Bennett is an alumnus of the Medical College of Virginia in the class of '28.

New Building of Jefferson Medical College Dedicated.

On February 22, were held the ceremonies incident to the dedication of the new building of the Jefferson Medical College, Philadelphia, at which time the various departments of the College were open to inspection. In the afternoon, alumni clinics were held in the Samuel Gustine Thompson Annex of Jefferson Hospital. The mid-winter smoker of the Alumni Association took place that evening.

Dr. L. S. Early,

Petersburg, Va., was elected national representative of the Robert E. Lee Council, Boy Scouts of America, of that city, at a recent meeting.

American Public Health Association.

Because steers and bucking bronchos come to one's mind immediately when Texas is mentioned, the members of the American Public Health Association who are responsible for arrangements for the fifty-ninth annual meeting to be held in Fort Worth, October 27-30, have asked the Local Entertainment Committee for a rodeo. And they are to have it unless some-

thing happens to all of the bronchos in the meantime.

In addition to watching native sons wrestling with steers and ponies, there is to be an excellent scientific program. The anti-diphtheria campaign, undulant fever, and meningitis are three topics which will be made subjects for joint sessions to be participated in by all the sections of the Association.

Further information about the Fort Worth meeting will be furnished, upon request, to the Executive Secretary, Homer N. Calver, 370 Seventh Avenue, New York, N. Y.

Dr. Wiley J. Rollins, Jr.,

Of the class of '25, University of Virginia, Department of Medicine, has just moved to Houston, Texas, where he is connected with the Houston Clinic. Dr. Rollins has been located in Macon, Ga., for the past year.

Special Health Study of Prisons Just Completed.

The first comprehensive survey of American prisons and adult reformatories, from the point of view of health and medical service, has just been completed, according to announcement by William B. Cox, secretary of the National Society of Penal Information. Dr. Frank L. Rector, executive secretary of the Chicago Medical Society, is author of the health and medical service study, which covers every federal and state penal institution, making a total of more than one hundred state prisons and adult reformatories. Counseling members of the advisory commission assisting in the work included: Dr. David L. Edsall, Dean, Harvard Medical School, Boston; Dr. George W. Crile, Cleveland; Dr. Alfred Owre, Dean, School of Dental and Oral Surgery, Columbia University, New York; Dr. W. H. Wilmer, Baltimore; Dr. C. C. Burlingame, Joint Administrative Board, New York; and Dr. William A. White, St. Elizabeth's Hospital, Washington. Practically all of the most prominent national medical organizations in the country cooperated in this survey, which reveals causes of mental and physical strain; that the medical department of many prisons is still a part of the political spoils system; inadequate ventilation and lighting; monotonous diet; and a minimum of recreation, in addition to overcrowding and idleness. Recommendations are suggested for overcoming these defects.

Further information about this work may be obtained from headquarters of the National Society of Penal Information, 114 East 30th Street, New York, N. Y.

Dr. W. P. Hoy,

Petersburg, Va., has been appointed one of the Petersburg delegates to the district conference of the Rotary Club, to be held in Richmond, Va., May 8 and 9.

The American Association for the Study of Goiter

Will meet in Seattle, Wash., July 10-12, inclusive, with headquarters at the Olympic Hotel. On the 12th, members will adjourn to Paradise Inn, Mount Ranier, Wash., for the closing session. Dr. J. Tate Mason, Seattle, vice-president of the Association, is in charge of arrangements for the meeting.

Dr. W. Lowndes Peple

Has returned to his home in Richmond, Va., after spending a while at the Mayo Clinic, Rochester, Minn.

Fire at Aston Park Hospital.

Fire and film explosion in an X-ray room on the top floor in a wing of Aston Park Hospital, Asheville, N. C., on February the 27th, caused the complete destruction of the X-ray equipment of that hospital. The transfer of eighteen patients from that wing of the hospital was quickly effected and no one was hurt. The fire is believed to have been started by a cigarette dropped near the steel cabinet in which were filed the exposed X-ray films.

Dr. E. Pendleton Tompkins,

Lexington, Va., on February 18th, read a paper, by invitation, before the Rotary Club of that place. His subject was "Some High Points in the Life of Big-Foot Wallace." Wallace was born near Lexington, and became a notable character—scout, dead-shot, Texas ranger, and Indian fighter, in Texas; and helped to establish the independence of Texas. By special request, the paper was read again to the high school students of Lexington. Dr. Tompkins is a member, and an officer, of the Kiwanis Club of Lexington.

The Gill Memorial Eye, Ear and Throat Hospital,

Roanoke, Va., has issued its program of postgraduate instruction in the eye, ear and throat specialties, to be held at the hospital from April the 7th to 12th. Information with regard to this course may be obtained from Dr. E. G. Gill, Box 871, that city. Several prominent specialists will have charge of the clinics.

XUM

Dr. L. E. Cockrell,

Reedville, Va., has been appointed by the Federal government acting assistant surgeon of public health service, and a third class relief station has been established at the port of Reedville for the care of American seamen, with Dr. Cockrell as surgeon in charge.

Dr. J. F. Alsop,

Prospect, Va., left recently for Tulane University, New Orleans, La., where he is taking post-graduate work.

Heads Children's Memorial Clinic.

Dr. Manfred Call was elected president and Dr. Beverley R. Tucker vice-president of the Children's Memorial Clinic, Richmond, at the annual meeting in February.

Dr. Kolmer Promoted to Rank of Major.

Dr. George A. L. Kolmer, director of public health in Salem, Va., has been promoted to the grade of major in the 305th medical regiment, reserve corps.

University of Virginia Medical Society.

The regular meeting of this Society, on January 27, 1930, was called to order by the president, Dr. Lehman. A symposium on trichinosis formed the main feature of the evening. An epidemic of infection by trichinella spiralis, the first in the history of this hospital, was reported by Dr. W. W. Waddell. He presented several cases occurring in one family. Dr. Oscar Swineford discussed the essential features of laboratory findings in these cases with an outline of treatment. This case report will soon appear in print. The tissues and necropsy findings in one fatal case were presented by Dr. J. B. Graham.

Dr. C. B. Morton read an original paper, "Observations on Peptic Ulcer," with the report of a case of acute duodenal ulcer. The etiology of this case apparently corroborates experimental data on peptic ulcer which Dr. Morton has been obtaining for several years. This article was published in *Annals of Surgery*, January, 1930.

The next regular meeting of the Society will be February 17, 1930, at the Ampitheatre of the New Medical School.

At the last meeting of the University of Virginia Medical Society on February 17th, Dr. Richard Meade of the Surgical Staff read a case-report of "Traumatic Rupture of a Bronchus without Bony Injury to the Chest Wall." This injury resulted from an automobile accident occurring in a young colored man. This case will appear in print at a later date. The main paper of the evening was given by Dr. Alfred Chanutin of the Department of Biochemistry. The subject of his discussion was "Some Phases of Chemical Studies During the Period of Starvation," which consisted of studies in experimental animals during the starvation period with chemical analyses of various organs and tissues, with a special emphasis on the creatinin content.

A short business session completed the meeting for this time. The date of the next meeting will be announced.

Dr. John W. C. Jones,

Newport News, Va., attended the Gloucester fox hunt, the latter part of February.

Dr. John H. Bell,

Superintendent of the Virginia State Epileptic Colony, addressed the joint session of the Kentucky Legislature, early this month, his subject being "Eugenical Sterilization."

Virginia Tuberculosis Association.

The annual meeting of this Association was held in Roanoke, Va., on February the 28th, under the presidency of Dr. Dean B. Cole, of Richmond. One of the features of the meeting was an address at the afternoon session by Dr. P. P. Jacobs, of the National Tuberculosis Association, New York, his talk being on educational campaigns in the control of tuberculosis. Several Virginia doctors also spoke at the morning and afternoon sessions. The night meeting was held jointly with the Roanoke Academy of Medicine, at which time Dr. H. Kennon Dunham, Cincinnati, nationally known tuberculosis specialist, was the speaker.

At the business session, Dr. Dean B. Cole, Richmond, was re-elected president; Dr. H. A. Latane, Alexandria, and Mrs. T. A. Allen, Roanoke, vice-presidents; Mr. George W. Call, Richmond, treasurer; and Dr. Roy K. Flannagan, Richmond, secretary of the board. Miss Leslie C. Foster, Richmond, is executive secretary of the Association.

Protecting Children From Tuberculosis

Is to be the objective of a national campaign to be put on in April, when tuberculosis associations throughout the country will join in

an educational campaign to impress on the public that this disease usually begins in childhood. This campaign has been made possible through the sale of Christmas seals. The National Tuberculosis Association is preparing several million pieces of printed matter for distribution through its affiliated associations; a motion picture entitled "Consequences" is available; a special educational film for parents and teachers is ready, etc. In short, effort will be made to impress every person in the United States with the importance of preventing tuberculosis before it is too late, by discovering it early.

For further details concerning the campaign, address your local or the State Tuberculosis Association, or the National Tuberculosis Association, 370 Seventh Avenue, New York City.

Dr. A. M. Showalter,

Christiansburg, Va., was elected grand senior warden of the Grand Lodge, Ancient, Free and Accepted Masons of Virginia, at its annual communication in Richmond the middle of February.

Examination for Entrance into the Regular Corps of the U. S. Public Health Service.

Examination of candidates for commission as Assistant Surgeon in the Regular Corps of the U. S. Public Health Service will be held on May 5, 1930, at Washington, D. C., Chicago, Ill., New Orleans, La., San Francisco, Cal., and Stapleton, S. I., N. Y.

Candidates must be twenty-three years and not over thirty-two years of age. They must have been graduated in medicine at a reputable medical college, and have had one year's hospital experience or two years' professional practice. They must satisfactorily pass oral, written, and clinical tests before a board of medical officers, and undergo a thorough physical examination.

Successful candidates will be recommended for appointment by the President, with the advice and consent of the Senate.

Request for information or permission to take this examination should be addressed to the Surgeon General, U. S. Public Health Service, Washington, D. C.

Headquarters for Pharmacopoeial Convention.

The Committee on Arrangements for the Eleventh U. S. Pharmacopoeial Convention in Washington, D. C., May the 13th, announces that the Hotel Willard is to be headquarters' hotel. Rates here are from $3.00 a day for single room without bath to $9.00 a day for double room with bath. The Raleigh Hotel offers rooms with baths from $4.00 to $9.00; the Washington, rooms with baths from $5.00 to $12.00 a day; the Powhatan, rooms with baths from $4.00 to $9.00 a day; and the Harrington, from $2.50 without bath to $8.00 with bath.

Delegates are respectfully requested to make their reservations directly with their hotel, at least two weeks in advance of the Convention.

Dr. L. F. Hansbrough,

Front Royal, Va., has been elected a member of the board of directors of the recently reorganized Associated Charities of Front Royal and Warren County.

Guest of Norfolk County Medical Society.

On February the 17th, Dr. Paul Dudley White, of Boston, Mass., addressed the Norfolk County Medical Society, his subject being "The Prevention of Heart Disease." This Society is having some interesting meetings and will have Dr. Chevalier Jackson as an out-of-State guest on March the 31st. All members of the Medical Society of Virginia are invited to attend any of the meetings of this society.

Additional Doctors Among Bank Directors.

In addition to the doctors named in our last issue as being among bank directors in this State, we note the names of Dr. Carter Weisiger as a director of the Cumberland Bank, and Dr. R. D. Garcin as a director of the Bank of Commerce and Trusts of Richmond.

The Southwestern Virginia Medical Society

Is to hold its regular semi-annual meeting in Radford, Va., March 24th and 25th, under the presidency of Dr. J. Coleman Motley, of Abingdon. An interesting program has been arranged. Dr. W. S. Leathers, Dean of the School of Medicine of Vanderbilt University, Nashville, Tenn., has been invited to address the Society and will speak on "Preventive Medicine." Dr. E. G. Gill, Roanoke, Va., is secretary of this Society.

Medical Examiners for C. M. T. C. Boys.

Drs. E. J. Nixon, James E. Smith and E. W. Young, Petersburg, Va., have been appointed examiners for the Petersburg and Dinwiddie County districts, by the Citizen's Military Training Camp Association.

XUM

Dr. W. J. Harrell,

Norfolk, Va., who has been sick for over a year, is now better and hopes to be out again soon.

For Sale.

Kelley-Koett, bedside unit X-ray machine. Can be used on 110 or 220 alternating current, Coolidge tube. Potter-Buckley Diaphragm.

Communicate with "R," care this journal. (*Adv.*)

Position as Assistant or a Partnership Wanted.

Two years' hospital work. General work. Majored in surgery and G. U. work. White, aged 25. Married. Protestant. Address "No. 218," care this journal. (*Adv.*)

For Sale or Lease.

Fireproof, brick hospital, modern in every detail, well equipped. Located in progressive community. Suitable for sanatorium or hospital of some definite type; another general hospital in town. Medical library and operating room fixtures, Kny-Scheerer sterilizers, etc., can be bought separately.

Write Mr. James H. Price, attorney for estate, Times-Dispatch Building, Richmond, Va. (Adv.)

Obituary Record

Dr. Richard Randolph Nevitte,

Temperanceville, Va., died January 17th, after a short illness. While performing an operation on January 3rd, he cut his finger and developed blood poisoning. Dr. Nevitte was born at Newington, Fairfax County, Va., and was fifty-eight years of age. He graduated from the University College of Medicine in 1902 and had been practicing in Temperanceville for the past twenty-eight years. Dr. Nevitte was a World War veteran, having served in France. He was a former president of the Accomack County Medical Society, vice-president of the Physician's Journal Club of the Eastern Shore of Virginia, and was associated with several fraternal organizations. He had been a member of the Medical Society of Virginia for twenty-eight years. His wife and two children survive him.

Dr. Alpheus Fields,

Norfolk, Va., died at his home in that city on February 4th, at the age of sixty-two years. Although a native of Lenoir County, North Carolina, Dr. Fields had made his home in Norfolk for the past twenty-five years. He graduated in medicine from Jefferson Medical College, Philadelphia, in 1887. He was a member of the Norfolk County Medical Society and had been a member of the Medical Society of Virgina since 1898. His wife and three children survive him.

Dr. John M. Harwood

Died February 12th, at his home in Petersburg, Va., after an illness of several days. He was forty-one years of age and graduated from the Medical College of Virginia in 1917. Dr. Harwood was a charter member of the Petersburg Kiwanis Club, and had been a member of the Medical Society of Virginia since 1918. He was the son of the late Dr. William E. Harwood. A young daughter survives him.

Dr. Charles William Greever,

Tazewell, Va., died suddenly on February the 14th, although his health had not been good for sometime. He was a native of Tazewell County, Va., and seventy-seven years of age. He was graduated in medicine from the Chattanooga (Tenn.) Medical College in 1901, and joined the Medical Society of Virginia that Fall. In addition to his professional work, Dr. Greever had served his county in many important offices, and had also been mayor of Tazewell. His second wife and several children survive him.

Dr. Louis Eldridge Foulks,

An associate member of the Medical Society of Virginia, died at the home of his son in New Egypt, N. J., December 11th, after an illness of two years with cancer. He was seventy-six years of age and had held many prominent positions, the last of which was being head of the Health Department of Alexandria, Va., from which he resigned when his health failed. His wife and three children survive him.

Dr. Joseph A. Shuler,

India, Va., died in his home in that place, on January 3rd, his death being due to heart disease. He was sixty-two years of age and had graduated in medicine from the Chattanooga (Tenn.) Medical College in 1905.

Dr. Martha M. Waldron,

Retired physician of Hampton, Va., died January the 3rd, death being due to angina pectoris. She was seventy-nine years of age and had graduated from the Woman's Medical College of Pennsylvania, Philadelphia, in 1881.

XUM